Wildlands in Our Civilization

Edited by DAVID BROWER

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FROM THE FOREWORD

Perspective on wilderness has changed notably in the fifteen years that have elapsed since the first biennial wilderness conference the Sierra Club sponsored.

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DAVID BROWER

San Francisco, December 18, 1964

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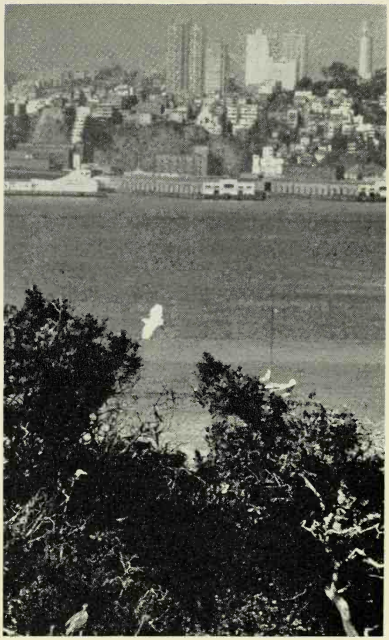
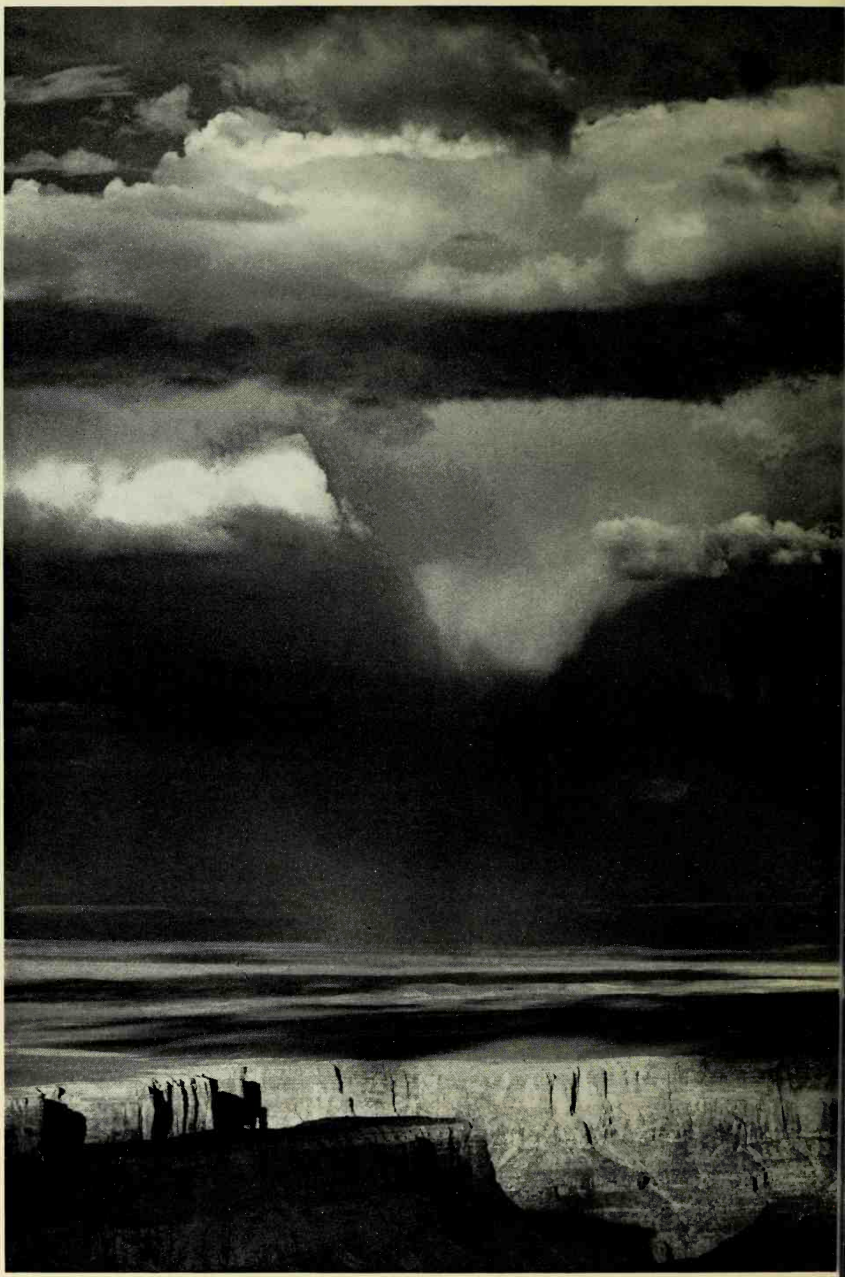


WILDLANDS IN OUR CIVILIZATION

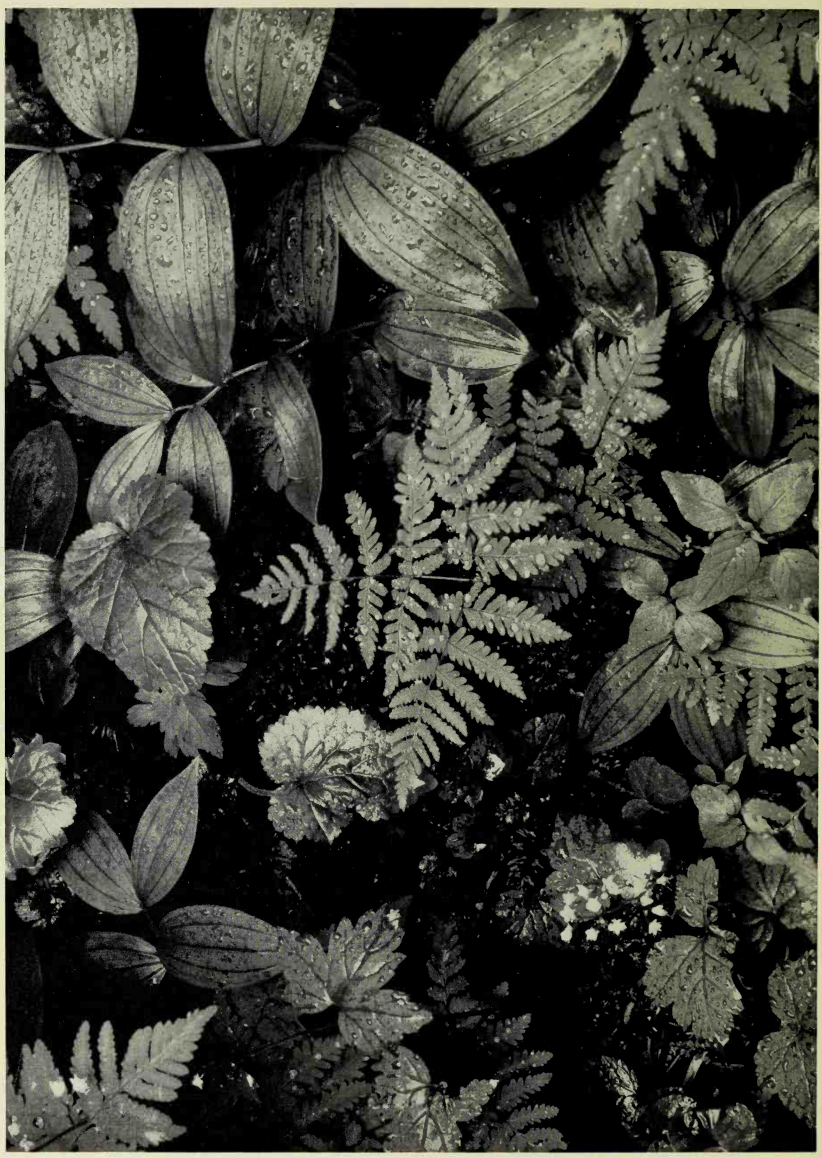
Philip Hyde



The sun

would light all this mountain land soon . . .

Philip Hyde



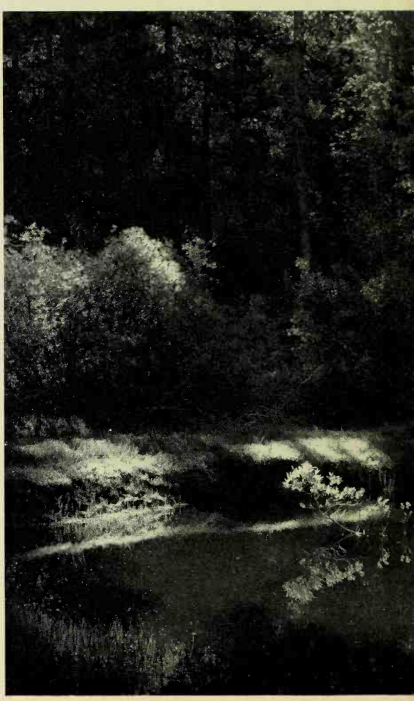
and we hope it will always reveal wilderness there —
in the avenues of unspoiled forest,
in the flashing waters.

in the friendly lower gardens and grassy alplands,
up at timberline and in tundra,
on the glaciers and peaks.

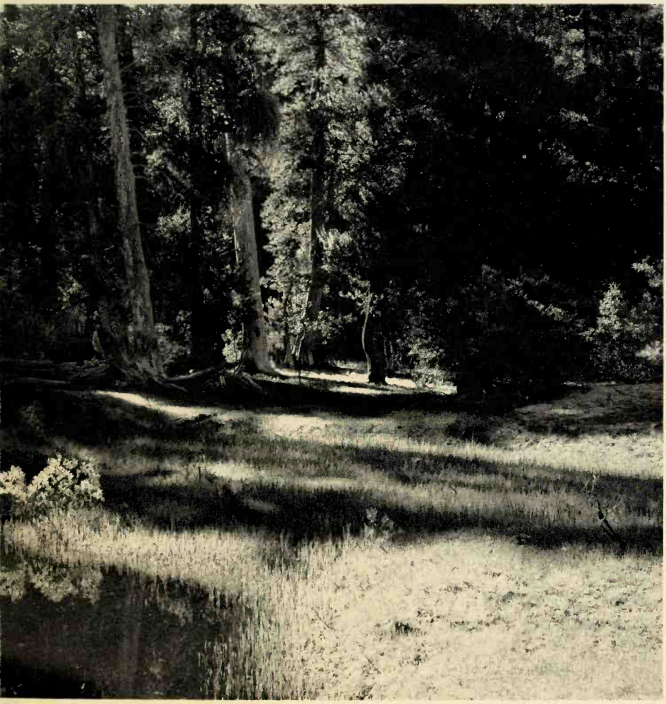
David Simons

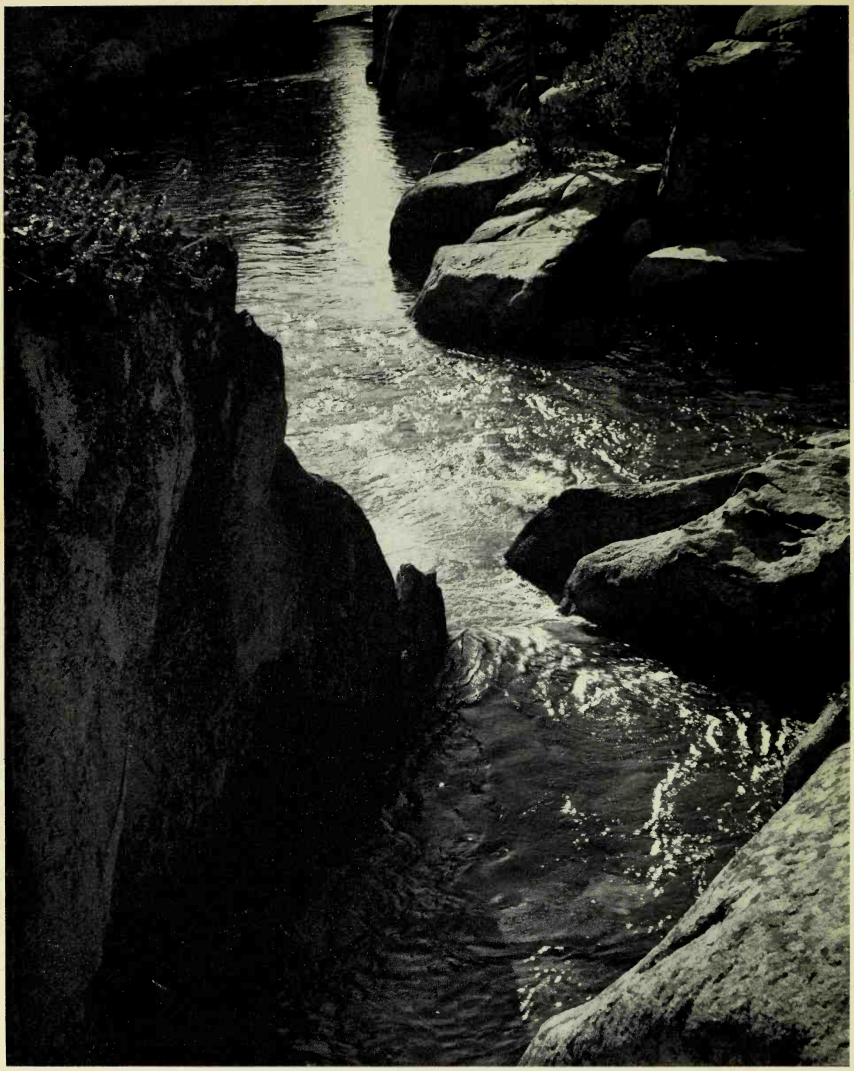
Other people will want to be walking our trails,
up where the tree reaches high for the cloud,
where the flower takes the summer wind with beauty,
and the summer rain, too.

They will want to discover for themselves
the wildness that the ages have made perfect.



Philip Hyde





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Wildlands

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of the first five Biennial Wilderness Conferences, 1949-1957

edited, with contributions, by David Brower

in Our Civilization

SIERRA CLUB · SAN FRANCISCO

THE SIERRA CLUB is a national conservation organization founded in 1892 by John Muir to explore, enjoy, and protect the nation's scenic resources of parks, wilderness, wildlife, and the recreation derived from them. There are more than 27,000 members; 20,000 have joined the club in the last decade in support of an active program to preserve the scenic resources. The main headquarters and several chapters are in California. There are also chapters headquartering in Seattle, Reno, Chicago, Santa Fe, and New York. The program is in independent support of the public interest as the club sees it. The club is managed by an elected board of directors and is affiliated with the Natural Resources Council of America and the International Union for Conservation.

The club has been well aware of the dual aspect of conservation, calling on the one hand for much wise utilization of resources on at least ninety per cent of our land, and on the other hand for some wise preservation on at most ten per cent of our land. The first kind of conservation is difficult enough, the second ever so much more so. In the effort to further both, the club had roles in creating the Forest Service and the National Park Service. It has profound respect for the people and achievements of both agencies but reserves the right occasionally to disagree with them.

Membership is open to those who are sympathetic with the club's purposes and wish to support its program. Dues are nominal.

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Subsequent conferences broadened the view: enjoyment of wilderness, good though it might be, was far transcended. A more important concern was to see that whatever wilderness borders there were should encompass enough of the remnant within. Wilderness should have the best protection man could devise in regulations, law, and ethics. In this remnant, nature indeed had rights, whether or not the law yet recognized them; and the preservation of wilderness was one of man's responsibilities to the planet he walks on so briefly and yearns to see his kind survive upon.

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All this can be said because hindsight is so prescient. It is convenient to publish last what should have been the first of four volumes on eight wilderness conferences. Now one book can introduce a trio, and indicate where the public mind is going.

Wallace Stegner starts this volume with his appraisal of where 1958 found us in the wilderness-preservation movement—a fix we always will be in as long as there is beautiful country to be held and loved for what it is, however coveted for inferior uses. Five biennial wilderness conferences and a brief aftermath brought us to where Mr. Stegner

found us. Three more conferences followed, and each needed a separate volume; further volumes ought to be warranted in years to come.

This volume does not have the homogeneity of the earlier three because it is not restricted to the theme of a single conference. But what is here deserves to be within one set of covers, readily available to all who wish to work for wilderness preservation.

The early conferences were accompanied by recommendations voted by those who attended the final session. It is sobering to review the list, to see how much is an inventory of tasks undone and how much is now a tabulation of achievements. The moral may be that polite conservationists leave no mark except the scars on the land that could have been prevented. Wondering why they were not prevented, we suspect a further moral: we must be wary of people who evince "the relaxed confidence of those who have their creative achievement safely behind them." The line is borrowed from C. P. Snow. We still need conservationists who will attempt the impossible, achieving it because they aren't aware how impossible it is.

Whatever the success quotient so far, people are awakening, and we wish to thank especially those who contributed to the awakening. We would also like to thank in advance those who will actually use this information—use it physically, emotionally, intellectually in such a dynamic way that there will always be wilderness to awaken to. Dynamic thinking and dynamic action: only these can perpetuate our past achievements and maintain the momentum of our cause in the future.

On March 4, 1959, in an address before the Twenty-fourth North American Wildlife Conference in New York City, I tried to describe some of the broader meanings of wilderness in the search for broader support for it. Those remarks are included here, six years later, to serve the same purpose:

* * * *

The news has probably been kept from you but the story is being given credence out on the Coast that New York is about to make way, within the next decade, for California: the land of sunshine, oranges, and Forest Lawn is about to become the nation's most populous state. So I have been sent back here on a search for space, for land on which California can resettle its surplus citizens.

I wish that this pretense were as humorous as it is ridiculous. But it isn't. Since I left San Francisco three days ago some four thousand people have added themselves to the California population permanently—and the number is permanent even if the people are mortally not so. This sort of addition has been going on all year, ever since the War for that matter, and isn't expected to slow down. This is what

causes our earthquakes, such as the one the papers just reported, although no scientist has yet made the announcement. You see, the land is merely adjusting itself to the weight of the new people! So now suburban sprawl has spread the full thirty miles south of San Francisco along both sides of the San Francisco Bay. For each new house there is at least one new automobile, in keeping with the current conviction that every man needs two tons of steel to get him from his bed to his desk and some 300 square feet of pavement to park the steel on at both ends of the run. Mass transportation is withering, but we are solving this little annoyance with vision and vigor.

We solve our problem with what you call throughways and turnpikes and what we call, by strange semantic twist, *free*ways. Why free? I don't know. Not in money, for they cost millions. Not in land, for they cost us thousands of acres of our most productive soil. They aren't free in movement, either. Our engineers boast that we can travel half the length of the Bay without meeting a stoplight. (Our Spanish predecessors could make the same claim!) But they're talking in pleasant theories, not of actual fact. All too often rush hours find a given freeway jammed bumper to bumper and the array of stoplights stretched out before you is something to behold. Our most popular disk-jockey program at rush hour spends less time on music than on news of the latest jam, and what route you should try to take to get around it, if you're not caught in it yet. Some of our freeways become obsolete before the ribbon is cut in our standard opening ceremony.

That, in a slightly distorted view, is how we are solving our problem. And if Northern California thinks it has a problem, you can pardon Southern California for laughing. Their growth is three times as fast as ours. No need to worry, of course. After all, the universe is an expanding universe.

So we'd like to expand your way. What can you offer? How many half-acre lots, with space for a 3- or 4-bedroom ranch house plus garden? With plenty of good schooling near by. Not far from where we want to work. Smog-free. A small park close by—where the children can find playground apparatus, the youths can enjoy big-muscle play, where the parents can stroll and unwind the week's tension, and where elders can sit and watch and remember when the days weren't so tense.

And by the way, can you add to these things, what with the shorter work week and longer vacation we're counting on—can you also add some untrammeled seashore and mountains?

I suspect that I've pushed a troubling point far enough, but let me add Ossa on Pelion—two cheering statistics. In this century the

world has used up, and has lost forever, more natural resources than has all previous history. And there are now alive, with an unprecedented appetite for resources, 10 per cent of all the men who ever lived on this earth. Twenty-five billion people in the long million years since the dawn of man. Two and a half billion since Yellowstone National Park was created, people using up more resources, including space, than all the rest, and at greater speed. Yes, using up all the resources available to mankind except the resource of restraint.

While the ushers pass out the sackcloth and ashes, contemplate these figures. But please don't take time to check my arithmetic. It comes from a good source, but the accuracy of the source doesn't really matter. Time is running out. Whatever the time left, we can do better with it than we are doing. I agree with Allen Morgan, who says about wild open spaces that "what we save in the next few years is all that will ever be saved."

The important opportunity is to accept the fact that we are confronted with a problem the likes of which our predecessors hardly dreamed of, that it is a problem that man created and that men can solve—but not by reaching for a tranquilizer and curling up with the slick magazine that reassures us, with charts and diagrams in three colors, that science will save us; science, unaided by people.

* * * *

If you feel the need, about now, for a draft of fresh air, be assured that I do too, and that is what I'm here to talk about. About wildness —and wilderness, where the best of wildness lives. Wilderness is fairly close to the best place of all in which to find a draft of fresh air, in which to take stock, in which to find yourself, discover the *you* that so many distractions have kept you away from so long that "the life you lead is not your own."

What about wilderness? What is it, where is how much of it? For whom and why? And if so, how can we keep some for a still more crowded world than ours, a world that will probably need the raw materials of wilderness more than we think we do, and that will need the spiritual resources ever so much more than we do?

We could easily devote an hour's discussion to each of these questions. But let me assure any of you who is tempted to rush for the exit that I shall limit myself instead to no more than a few minutes' musing on all the questions put together.

But first, a definition of wilderness is in order.

Mrs. Malaprop might have said that wilderness is a place where

the hand of man has not set foot. But she didn't. She had not heard of the kind of wilderness, as a concept, that we are talking about. Not that it's exactly a new concept. The prophet Isaiah seems to have had it in mind when he wrote what was translated as "Woe unto them that join house to house, that lay field to field, till there be no place, that they may be placed alone in the midst of the earth!"

Moses found opportunity for his people in wilderness—wilderness much of which was turned to desert before the Sermon on the Mount admonished man to consider the lilies of the field—(the natural field I assume)—and how they were arrayed. That particular wilderness was subsequently utterly stripped of its verdure by man, including the exploitation of the Cedars of Lebanon, which went down to the sea in ships.

To compress the history of the wilderness idea into a few lines: The Middle Ages, and nothing. Then the Renaissance, and Conrad Gesner finding reason for the admiration of mountains. Very little more until William Blake worried about those dark Satanic mills. More recently Olmsted, Emerson, Thoreau, and Muir. Finally the explosion of man across the earth, and here, in the United States, wilderness vanishing with such velocity that we knew, inescapably, that man alone was responsible for the loss. The 1920's and the Forest Service trying hard, under the leadership of Aldo Leopold and Robert Marshall, to define what should *not* happen in wilderness. In 1930 Robert Marshall defining what man *should* find in wilderness, ought to find, had to find if the spirit that stood him upright was not to perish in an overcivilized lukewarm world.

Marshall used the word wilderness "to denote a region which contains no permanent inhabitants, possesses no possibility of conveyance by mechanical means, and is sufficiently spacious that a person crossing it must have the experience of sleeping out." Survival in it, he said, is up to you. Find environment *in* it; don't bring one with you.

This idea of wilderness, new though it is, is now quite widely accepted. It isn't yet underwritten by federal law, but it does appear, strangely, in an international treaty on nature protection and wildlife preservation in the Western Hemisphere which was signed by the United States 18 years ago. In this treaty wilderness is defined as "a region under public control characterized by primitive conditions of flora, fauna, transportation, and habitation wherein there is no provision for the passage of motorized transportation and all commercial developments are excluded."

Let me add one more definition and then move on. This one comes from the Wilderness Bill: "A wilderness, in contrast with those areas

where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

* * * *

This is a lot of detail about definition. Why? Because when someone is about to be tempted to cash in on a priceless heirloom rather than work a little harder for the money instead, it is high time that he look hard at that heirloom, find out what it means to him, whether he should let it slip away or pass it on to his son instead, as it was passed on to him.

My analogy isn't very good, for wilderness goes far beyond being a mere heirloom. There is no sentimentality about wilderness.

As Howard Zahniser, of The Wilderness Society, has put it: "We work for wilderness preservation not primarily for the right of a minority to have the kind of fun it prefers, but rather to ensure for everyone the perpetuation of areas where human enjoyment and the apprehension of the interrelations of the whole community of life are possible, and to preserve for all the freedom of choosing to know the primeval if they so wish."

And we work hard, with a sense of urgency. The wilderness we now have is all the wilderness we shall ever have in America. There is little left—less than one-third acre per person in the United States if you count all the wilderness that has any administrative protection in our national parks and forests and wildlife refuges and on Indian lands. One-third acre per person today; less per person as our population expands still further; all of it subject to being struck out by an administrator's pen.

I say all this about wilderness because it is the essence of the wilds we need around us. Since it lives but once, there should be ample opportunity to review the death sentence that so many people in the chambers of commercialism would like to inflict upon wilderness.

Many of us feel that wilderness should have an automatic stay of execution, and that Congress should provide it.

Hence the Wilderness Bill—the proposal to establish a National Wilderness Preservation System.

There has already been a decade of careful study leading up to the present Wilderness Bill. There is immediate need for what William H. Whyte, Jr., calls "retroactive planning"—for protecting *now* the land we think is needed, then rationalizing later how right we were all along to have done it. If too much wilderness is protected this way, we can always correct the situation later. If too little is protected, if

too much has been turned over to exploitation, then we cannot unfry the egg.

Wilderness protection must not be delayed. If you will remember your first aid course, you will remember these priorities: bleeding, breathing, shock. It does little good, if a patient is bleeding to death, to sit down and study objectively what kind of bandage will be needed on the wound. You get in there and stop the bleeding. Otherwise you'll have nothing to bandage but a corpse.

Support for the Wilderness Bill comes from no hastily organized battalion of rugged hikers, no "wilderness lobby"; it reflects broad public concern about direction. It reflects growing conviction that as Dr. Daniel B. Luten puts it, "the nation does not exist to serve its economy"; that there must be more public participation in the treatment of the single heritage of land that must serve all the generations, and that to "leave these things to the experts" is to resort to absentee citizenship.

It also reflects the dawning realization that Growth without end is soon monstrous, then malignant, and finally, lethal—that an economy based upon incessant growth may well turn out, in the long run, to have been a chain-letter economy, in which we pick up the handsome early returns, and either our children or theirs find the mailbox empty, their resources having been expended by us.

I was trying to make this point in Berkeley a short time ago and a question came up from the floor: Could we afford to do anything less than keep growing inasmuch as that was what the Russians were doing? While I struggled ineptly with a reply, Dr. Luten came to my rescue. "You've heard of the game of 'chicken,' haven't you?" he asked. "It's sort of a Russian roulette on wheels. Two juveniles head directly toward each other at high speed on the highway, and the first one who turns to avert the crash is chicken. We frown on such behavior in adolescents, but we seem to accept it as national policy."

Supporters of wilderness—and of the restraint that is inherent in preserving it—are fond of civilization. They like it well enough not to want it to take too many steps, with "the bland leading the bland" (Galbraith), down the road paved with good inventions, on which there may be no turning.

Whoever should look for the words, "Wilderness Lobby," on the door of some office near Capitol Hill would be looking in the wrong direction. He should look instead at the land—all the land the country is ever going to have for all the U.S. citizens ever to be born—and the rapidity with which many of its nonrenewable resources have been used up for so few. He should resist escape into the "Science will save us" club until he has counted the ever-more-perplexing problems the

saving is bringing us. And he should look at a few recent books that cannot be isolated from a common concern about an uncommon threat to civilization: Brown's *The Challenge of Man's Future; Galbraith's The Affluent Society;* Packard's *Hidden Persuaders;* Whyte's *The Organization Man* and *The Exploding Metropolis;* Keats's *The Insolent Chariots;* Huxley's *Brave New World Revisited;* Gary's *The Roots of Heaven;* Callison's *American Natural Resources;* and Leopold's *A Sand County Almanac.* The list ends too soon and is almost humorously disparate. Yet it has a common denominator of substantial uneasiness about what we are letting happen to us, about things that are forcing us into a corner where we must choose to live with less or not at all, witnessing instead, in that last blinding flash, the final glimpse of struggle between economies seeking to out-exploit one another.

The connection between the ability of civilization to protect wildness and the ability for civilization to survive is not so tenuous as we might wish. It is worth energetic scrutiny, and at length. For the kind of thinking that motivates the grab for what's left on the bottom of of the barrel—the pitiful fragment of resources in the remaining wilderness—is the kind of thinking that has lost this country friends it cannot afford to lose. The ultimate in selfishness is evidenced in those opponents of wilderness preservation who have demanded an open door for exploiting wilderness while they slam another door in the face of friends needed overseas and north of the border. Don't import oil, wood, plywood, lead, zinc, the opponents say, whatever such restriction may do to the economy of our friends. Don't import them because we have more than enough of our own. And concurrently opponents urge that nothing interfere with their looking for still more of their own—anywhere in the public's dedicated wilderness!

The international economic and political difficulties the wilderness opponents would thus aggravate are serious. The difficulties may not stem from their opposition to wilderness, but there is certainly guilt by association. They stem from what could be called a philosophy of last things first.

It has remained for a physicist to single out the biological peril. As Dr. J. A. Rush put it: "When man obliterates wilderness, he repudiates the evolutionary force that put him on this planet. In a deeply terrifying sense, man is on his own."

As a handy example, I have beside me in my hand a small object, about the size of the letter *o,* which the evolutionary force has built. Within it is embodied a direct living connection all the way back through all the aeons to the very first appearance of life on this planet. Against that space of time man's life span is insignificant, his ken is

barely significant, the entire duration of mankind is hardly noticeable. The object, of course, is a seed. Packed in a fragment of its space is all the know-how needed to perpetuate redwoods on earth, even if every other seed and existing redwood were to be wiped out. Included in that know-how is the ability, should a once-in-a-century flood bury the base of the mature tree in silt, to activate the pushing of new roots—out through bark two feet thick, and out at just the right level below the new surface of soil in which the tree now stands.

I know of no research to determine in just what gene area this particular know-how exists, or what its biochemical formula is. Fortunately, no scientist has to know this. But the tree that otherwise could not survive *does* know it. Man did not have to steady the Teacher's hand when it found out, or when all the other forms of life found out how to perpetuate themselves, through good times and bad, in the wilderness they are designed to live in together, in dynamic equilibrium.

Does man dare be so arrogant as to assume that he must take it upon himself to steady the omnipotent force throughout the land, even to the last two per cent of wilderness? Perhaps Dr. Rush had some question like this in mind when he spoke of wilderness, the evolutionary force, and the terrifying prospect if man tries to stay on this planet without it. And Thoreau, too, when he wrote: "In wildness is the preservation of the world."

The Wilderness Bill is a needed step toward the recognition of this truth. Not just any bill, but a strong one, recognizing as national policy that wilderness is where you find it and keep it. There is little left to find, and scant little time remaining in which to resolve to keep some of that little—to rescue it from the raw materialism which threatens not only wilderness, but survival too.

* * * *

My protracted foreword, like the wilderness conferences, began long ago. Before the book could appear, two major events took place. We may now celebrate the fact that the Wilderness Act was signed September 3, 1964, by President Lyndon B. Johnson. Before that could happen, conservationists were shocked by the death of Howard Zahniser, who made the Act (and this book) possible. I would like to dedicate this book to his memory, and in his memory, to all who strive to equal his public service. Long may Howard Zahniser's example endure in mankind's thoughts about wilderness, and in what those thoughts lead man to do for it!

DAVID BROWER

San Francisco
December 18, 1964

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Further, we acknowledge in advance the help of all those who, upon working their way through the thoughts expressed in all these conferences, add their own thoughts and action and do something for wilderness themselves.—D.B.

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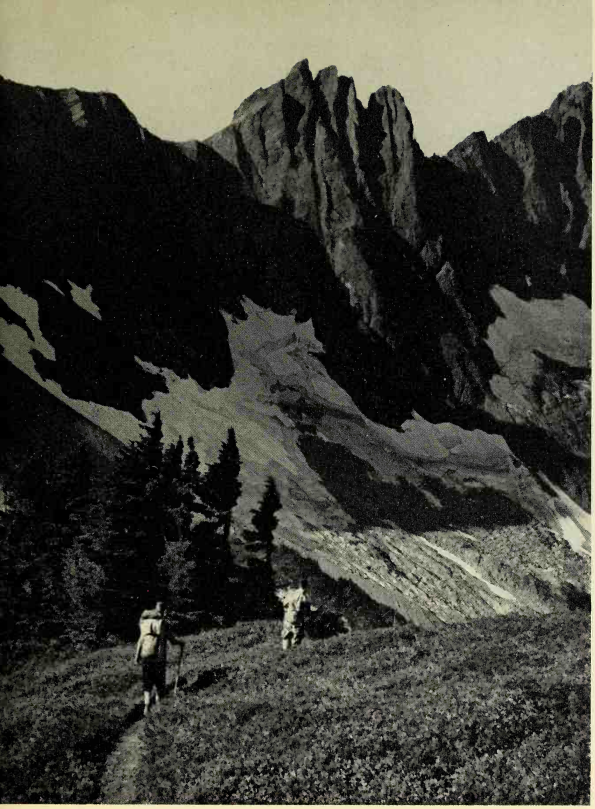


The Triplets,
Cascade Pass,
Northern Cascades, Washington
by Tom Miller

The Rough Riders Versus the Bird Watchers

"It used to be that when so-called 'resource-development' interests undertook one of their raids against the public lands, Bernard deVoto would appear like the Lone Ranger, trail the villains, and end by yanking out their shirt-tails and setting fire to them. If he were alive now, as God knows I wish he were, he would be warming up his blowtorch, not because what he used to call Two-Gun Desmond is shooting up the town again but because conservationists are moving to make at least part of the public domain permanently safe from raids. . . .

". . . the National Wilderness Preservation Bill . . . would establish on federally owned land a system of wilderness areas that could not be broken up without the consent of Congress.

"A wilderness is defined . . . as 'an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain.'. . .

Glacier Peak and Suiattle River forest, Northern Cascades
by Philip Hyde

". . . Here man's travels would leave only trails.

"Two-Gun Desmond — quite aside from the fact that such a sentiment profoundly puzzles him — is opposed: *his* travels characteristically leave overgrazed ranges, erosion gulleys, ruined watersheds, muddy streams, gravel-choked creek beds, stumps, bulldozer tracks, and other signs of Progress.

"Devastated forest land surrounding Abernathy lookout tower near Ryderwood, Washington. This area once was covered by a magnificent stand of Douglas fir and was clear cut using high lead logging by the Long Bell Lumber Company. Repeated fires after logging have made this area practically a wasteland." Forest Service legend. Photo by L. J. Prater.

". . . the wilderness areas would still enjoy multiple use, if the word 'multiple' implies, as I think it does, more than two. The customary uses of any national forest, in order of their practical importance, are watershed protection, recreation, conservation, selective logging, grazing, and mining. To these must be added some 'impractical' uses. A forest, and most especially a wilderness forest, is a vast research laboratory, a vast schoolroom, a vast nondenominational church. These functions are a good deal less trivial than the resources of timber, minerals, and grass that may be locked up. But a succession of biologists, scholars, and nature lovers who testified to these values of wilderness brought indulgent smiles to the faces of the rough riders at the meetings.

"To Desmond, multiple use has always meant *my* use.

Sheep driveway, Cache National Forest, Utah
Forest Service photo by Paul Bieler

"The urgency behind the move to protect remaining primeval lands by congressional action [was] that much was already lost; that uncontrolled gutting of resources, especially in the West, left ruined land that could never in ten lifetimes be brought back; that wilderness once spoiled was gone forever; and that wilderness for half a dozen reasons was important. . . . The reason Desmond fights the Wilderness Bill even though the lands it would reserve are already reserved is that he hopes sometime he can un-reserve them, and an administrative order is a whole lot easier to break than an act of Congress.

"It is interesting to listen to him as he testifies.

"He is always a friend to wilderness, and likes to see it protected. But this bill would reserve far too much of it. And why does it all have to be set aside in the West, thereby locking up the resources on which the West must depend for its payrolls and its growth?

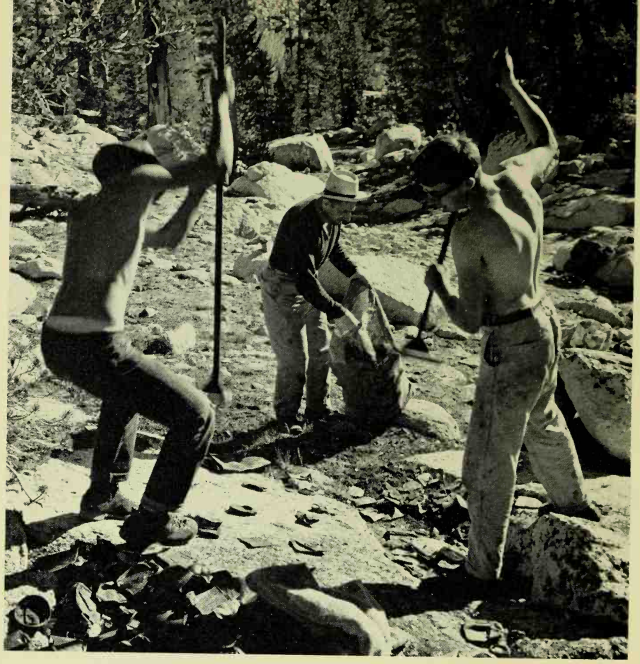
"The nature lovers who testified to the spiritual value of nature unmodified and unspoiled by man, and who drew smiles from the rough riders at the hearings, were not talking nonsense. In the long run they were not being impractical. They were speaking of something absolutely

vital to many of us now, and something that will be three times as necessary to our grandchildren. Their concern was not a selfish attempt to grab off a special and exclusive form of recreation, but the abiding concern of thinking and feeling people to preserve what helps keep men human, to save our contact with the nature of which we are a part.

"The rough riders have never exercised themselves overmuch about the future, or about any considerations except economic ones. They don't conceive that they owe the future anything, and neither did their grandfathers. . . . The bird watchers hope that by work and by renunciations today they may give their children and coming generations, in the coming age of steel and concrete and plastic and crowding and the accumulating carbon compounds of human and automotive waste, some human notion of what it is to be a man, an evolved mammal, part of the natural world.

"If the Wilderness Bill loses . . . the nation will have lost, the West will have lost, the future will have lost. In spite of [Utah's] former Senator Watkins's feeling that we ought to help establish a few wildernesses in other parts of the country and let the West get on with its lumbering and mining, it has never been man's gift to make wildernesses. But he can make deserts, and has."

Overgrazed sheep range. *U. S. Forest Service photo by D. Swan*

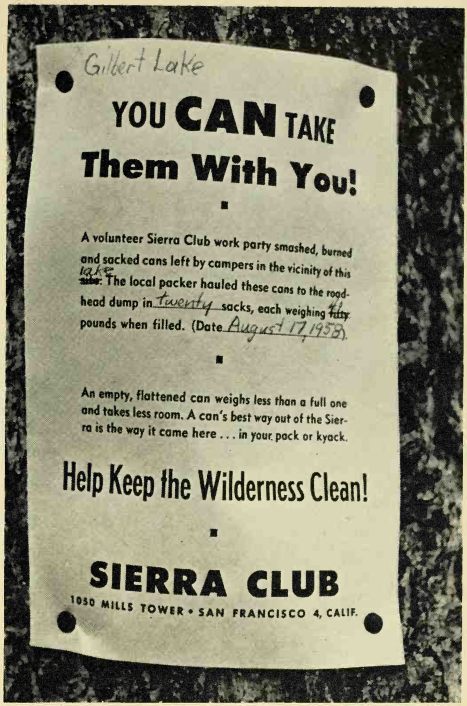


photographs by Rondal Partridge

Sierra Club Clean-up Trips

Wilderness need not suffer severely from human use if steps are taken to prevent erosion born of neglect. In 1958 the Sierra Club initiated a series of wilderness trips for volunteers who were willing to clean up badly neglected campsites in the Sierra Nevada.

Thanks to enlightened attitudes of many forest and park rangers and the hard work of many volunteers, the Sierra wilderness is freer from litter and debris than it was a decade ago. In addition to providing a wholesome outlet for youthful energies, the clean-up trips perform a necessary educational service — a basic training in land ethics.


Gilbert Lake
YOU CAN TAKE
Them With You!
A volunteer Sierra Club work party smashed, burned and sacked cans left by campers in the vicinity of this lake. The local packer hauled these cans to the road-head dump in twenty sacks, each weighing fifty pounds when filled. (Date August 17, 1958)
An empty, flattened can weighs less than a full one and takes less room. A can's best way out of the Sierra is the way it came here . . . in your pack or kyack.
Help Keep the Wilderness Clean!
SIERRA CLUB
1050 MILLS TOWER • SAN FRANCISCO 4, CALIF.

Philip Hyde

Remember These Things Lost

Music Temple, in the Glen Canyon wilderness, was destroyed by Glen Canyon dam in 1963. There were alternative sources of electrical energy then and will be in the foreseeable future. There is nothing to equal Glen Canyon.

INTRODUCTION

It used to be that when so-called "resource-development" interests undertook one of their raids against the public lands, Bernard DeVoto would appear like the Lone Ranger, trail the villains, and end by yanking out their shirt-tails and setting fire to them. If he were alive now, as God knows I wish he were, he would be warming his blowtorch, not because what he used to call Two-Gun Desmond is shooting up the town again but because conservationists are moving to make at least part of the public domain permanently safe from raids. There comes a time in every horse opera, as Mr. DeVoto knew, when the Better Element sets out to clean up the Territory.

At issue in 1959 is the National Wilderness Preservation Bill (S. 1123, Senators Humphrey *et al.*, and H. R. 1960, Reps. Saylor *et al.*) which would establish on federally owned land a system of wilderness areas that could not be broken up without the consent of Congress. A wilderness is defined by the Senate bill as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Here man's travels would leave only trails. Two-Gun Desmond—quite aside from the fact that such a sentiment profoundly puzzles him—is opposed: *his* travels characteristically leave overgrazed ranges, erosion gulleys, ruined watersheds, muddy streams, gravel-choked creek beds, stumps, bulldozer tracks, and other signs of Progress.

On the face of it, Desmond's concern is odd, since the lands in question would seem already out of his reach. All the wilderness proposed by S. 1123 is already in wilderness status: 22,000,000 acres in national parks and monuments of a "primeval" kind; 14,000,000 acres in 80 primitive, roadless, wild, or wilderness areas within the national forests;

and nearly 14,000,000 in wildlife refuges and ranges. In addition there are between 4 and 5 million acres in Indian reservations which are managed as wilderness by the Bureau of Indian Affairs; these would become part of the Wilderness System only by the consent of the tribes which own them. Of the potential total of around 55,000,000 acres, 15,000,000 are in Alaska and 246,000 in Hawaii; the bulk of the rest is in the Rocky Mountains and the Pacific Coast states.

No new agency would be created by the Wilderness Bill. Administration would remain, for the forest lands, with the Department of Agriculture, and for the park, wildlife, and Indian lands with the Department of Interior. Unchanged would be the National Park Service's difficult duty to conserve its scenery unimpaired and at the same to provide for its use by millions. Unchanged, except to be written into law, would be the Forest Service's unwritten policy of multiple use. But within the wilderness sections of either forests or parks, no use that destroyed the wilderness character would be permitted. No resorts, ski lifts, installations, dams. No roads except the essential fire roads and minimum access roads to private property landlocked by the reservations. No timber cutting or mining. Grazing, motor boat, and landing field rights, where they now exist, would continue as nonconforming uses.

These rescued remnants of our once-magnificent wilderness would "serve the public purposes of recreational, scenic, scientific, educational, conservational, and historical use and enjoyment in such manner as will leave them unimpaired for future use and enjoyment *as wilderness*," and they are conceived by the bill's sponsors as being "for the permanent good of the whole people." To insure that the people can keep an eye on their property, and to back up the bureaus charged with the administration of wilderness policy, the bill would create an unpaid advisory National Wilderness Preservation Council composed of the Secretaries of the Interior and of Agriculture, the Secretary of the Smithsonian, and three "informed" and "interested" private citizens. Two-Gun Desmond, because he thinks conservation prevents the "development" of the West, or because he feels that whatever is good for him or his industry is good for the public, or because he despises all federal control of the public lands—which he generally wants "returned" to the states, which never owned them—is as opposed to the Council as to the wilderness it would be out to protect.

Actually he is now on the defensive against a conservation movement that is powerful, bipartisan, and widespread, and that no longer conceives itself to be fighting a hopeless rearguard action against forces of population and development that will eventually overrun the whole continent. Nevertheless Desmond and his friends have managed to stall

wilderness legislation through two sessions of Congress, and are working to stall it permanently.

An earlier Wilderness Bill, S. 1176, introduced in the first session of the 85th Congress by Senator Humphrey and others, encountered both substantive and procedural objections, even among some people and agencies friendly to the bill's intentions. After hearings in both House and Senate, and after careful revision, it was reintroduced in the second session as S. 4028, again with a potent list of co-sponsors including Senators Humphrey, Neuberger, Douglas, Morse, and others. It never reached the floor, but it had another airing before the House and Senate Committees on Interior and Insular Affairs on July 23, 1958; and when it appeared that both proponents and opponents would welcome field hearings in the West, those hearings were scheduled for Bend, Oregon on November 7, San Francisco on November 10, Salt Lake City on November 12, and Albuquerque on November 14, 1958. Presiding at Bend and San Francisco was Senator Neuberger, at Salt Lake City, Senator Murray, and at Albuquerque, Senator Anderson. [Subsequently Senator Jackson presided over a hearing in Seattle on March 30 and 31, 1959, and Senator Goldwater in Phoenix on April 2.—Ed.]

It would be pleasant to report that the hearings were dramatic and vital, and that like ex-Senator (then Congressman) Barrett's "Wild West Show" of 1947 they resulted in a clear-cut triumph of light over darkness. No such luck. The hearings were, like most hearings, pretty dull, with only a spat between witnesses at Albuquerque to enliven them, and they produced no dramatic shifting from one side to the other. I attended only the one in San Francisco, but I do not feel that I have been deprived. The forces in support and opposition have been clear ever since the hearings on the original S. 1176 in June 1957. The transcript of that hearing runs to 444 pages, that of the July 23 hearing on S. 4028 to 218. The full transcript of the four western hearings, not yet available, will run to another thousand more. Only a devoted partisan is likely to read them. I have seen witness lists and partial transcripts of them all, and read most of the written statements submitted for the record. Some witnesses, especially those favoring the bill, represented only themselves; but most on both sides represented organizations or said they did, and many of the organizations and some of the individuals were present at more than one hearing—some at all four. The lineups are hauntingly familiar.

Present and vocal in support were representatives of the National Wildlife Federation, Trustees for Conservation, the Izaak Walton League,

the Wilderness Society, the Sierra Club, the Audubon Society, and many local outdoor clubs. Present and statistical in opposition were the stockmen's associations, the mining associations, the lumber and pulpwood associations, the oil and gas associations, the reclamation associations, the National Forest Recreation Association (resorts), and the chambers of commerce.

Those same lineups had faced each other in 1947 when Congressman Barrett led his filibuster westward in an attempt to grab for a few stockmen great chunks of the public domain. In 1951 (and every year since) they disputed the Forest Service's right to reduce the numbers of stock on forest ranges. In 1953 they fought over the tidelands and public lands policy in general. In 1954 and 1955 they banged heads over the attempt to build Echo Park dam in Dinosaur National Monument and thus breach the protective wall around the national parks. In 1957 they tangled over the proposal to reduce the Three Sisters Wilderness Area in central Oregon. The opponents knew each other to their inmost viscera, and their arguments were largely predictable in advance.

So, though the western hearings were judicial, with none of Congressman Barrett's virulence, with no stacked meetings or overprivileged witnesses, they were hardly meetings in which either the Committee or the opposed forces learned anything. They were sounding boards for rival philosophies, a means of bringing government closer to the people and publicizing an issue upon which there were deep and even acrimonious disagreements. These hearings, a somewhat cynical observer might have said, were four more rounds in the sixth or seventh rematch between old enemies. In this corner, wearing black guns, the rough riders with their seconds, the state politicians; in this, wearing knapsacks and binoculars, the bird watchers.

Over the years the despised bird watchers have won more rounds than they have lost (their principal losses were on the equivocal tidelands and on the reduction of the Three Sisters Wilderness), but as their organized strength has grown, so has the nation's population and the pressures on the public lands both for resources and for mass recreation. And the bird watchers had a few years of evidence of what one such Secretary of Interior as Douglas McKay could do to conservation policies more than half a century old. The national parks are protected to a degree by the National Park Act of 1916, though the protection does not extend to the dangers incident on growing population and the need to develop more and more public accommodations. But the Forest Service has no such legislative armor; its primitive and wilderness areas were the creation only of a farsighted bureau policy; they are founded only on an administrative order and could be undone by another order. Under

a Secretary so inclined, any Forest Service wilderness could be thrown back overnight into the multiple-use, timber-cropping, resort-permitting status of the other 92 per cent of the national forests—a status desirable for the 92 per cent but fatal for the precious remnant. Even without change of rules, a national forest like a zoned suburb can be whittled away by variances and extensions of the permit system.

That was the urgency behind the move to protect remaining primeval lands by congressional action. Farther back, as far back as Roosevelt and Pinchot, Powell and McGee, was the beginning of our growing consciousness that much was already lost; that uncontrolled gutting of resources, especially in the West, left ruined land that could never in ten lifetimes be brought back; that wilderness once spoiled was gone forever; and that wilderness for a half dozen reasons was important. All of our forest reserves, national parks and monuments, wildlife refuges, stem from the official and unofficial strenuousness of those bird watchers, sentimentalists, old ladies, backpackers, and barefoot nature lovers whom Secretary McKay lumped under the name of "punks." All of our eroded watersheds, blasted timberlands, and dust-bowl ranges were presented to us in fee simple by Two-Gun Desmond's grandfather. The reason Desmond fights the Wilderness Bill even though the lands it would reserve are already reserved is that he hopes sometime he can un-reserve them, and an administrative order is a whole lot easier to break down than an act of Congress.

It is interesting to listen to him as he testifies.

He is always a friend to wilderness, and likes to see it protected. But this bill would reserve far too much of it. And why does it all have to be set aside in the West, thereby locking up the resources on which the West must depend for its payrolls and its growth? And is there justice in a bill that would restrict the livelihood of present permittees and permittees as yet unborn? And any wilderness area, roadless and full of campers, is more in danger from fire and pests than regions more accessible. And prohibiting dams in the high country where most wilderness lies would seriously hamper water-development plans for all the western states. And stopping all timber cutting would interfere with watershed control and the scientific increasing of the run-off.

There are answers to these, and they were patiently put forward at every hearing. There is *not* too much wilderness; at the maximum extension of the Wilderness Preservation System it would incorporate only 2.2 per cent of our land area, and that is a small enough reserve against present and future pinching. The population of the United States in

the year 2000 may be 400 million, and our supply of every resource, including fresh air and living space, will be chillingly smaller. Moreover, almost all the proposed wilderness is in the West and Alaska because those are the only places any is left, and it is there only because up to now it has been protected from Desmond by certain high-minded and farsighted federal bureaus in the interest of the public at large, including the public of Desmond's own state. What resources there may be in the wilderness areas—and they don't amount to much—are already "locked up"—that is, they are preserved for the future, with keys for the future to use in case it needs to unlock them. The losses to the western states because of the withheld lands and their resources are more than made up by in-lieu funds, federal road assistance, kickbacks to states and counties from mineral leases, and in other ingenious ways that Desmond always forgets to remember. As to fire hazards in the wildernesses, Edward Crafts, Assistant Chief of the Forest Service, has testified that with smoke jumpers and other modern fire-fighting methods, the danger of fires in remote areas can be met. And only a small number of wilderness fires are caused by campers: most are caused by lightning. As for watersheds, wilderness is their best defender. From wilderness come few dirty streams to silt up dams lower down; out of it do come steadier and more dependable water supplies; on it lies a less vulnerable snowpack. The watershed control by timber cutting which is currently an object of research by the Forest Service does indeed produce more run-off; trees that are not there cannot transpire moisture or intercept and evaporate snow. But they can't create, either, the sponge of duff, soil, and the web of living roots that are the abiding essence of a forest watershed, and the long-range effects of timber cutting cannot be predicted. Powell's Report on the Lands of the Arid Region in 1879 commented on the increase of stream-flow that followed settlement in the mountain states; but it would be a rash man who would say that a hundred years of settlement have improved the watersheds there. The Desmonds, as represented by Mr. Bob Steiling of the Wyoming Natural Resources Board, are full of enthusiasm for the timber-cutting method of watershed control.

But what elevates Desmond's testimony above the level of high comedy, which inspires thoughtful laughter, and into the realm of farce, which elicits horse laughs, is his sudden, touching affection for the Forest Service and its principle of multiple use. The opposition to the Wilderness Bill has its eye primarily on the national forest wildernesses, for only in the national forests is there any appreciable logging, grazing, or mining allowed. Only there is there a fair chance of breaking down pro-

tective measures and getting unlimited access by the states or—which is the same thing essentially—by the stock, timber, oil, and mining interests of the states. For these reasons Desmond has been fighting the Forest Service tooth, claw, and rock for fifty years or more. Congressman Barrett's hearings in 1947 let loose against that poor bureau such vituperation, hatred, venom, vilification, and misstatement that even some western papers protested. And now behold, the lion has lain down with the lamb.

For look: an outrageous violation of fixed policy! Here is a proposal to turn over to a few thousand backpackers, for their exclusive use, 55 million acres of the public domain. Here is a bill that would yield a princely domain to a noisy minority, a little bunch of selfish eccentrics, while forever excluding the honest cowboy, miner, and lumberjack.

Further, the proposed National Wilderness Preservation Council would be one more bureau to break the back of the bureau-ridden West and bury the eleven public lands states deeper in colonial dependency. Why should the West be owned more than fifty per cent by the federal government, and run by absentee landlords? And if we must have bureaus, then what is the matter with that noble outfit, the Forest Service, which has done such a magnificent job up to now? What has it done that it should have an overriding council created to spy on it? Fie, for shame.

This is a fascinating speech. I was more fascinated each time I heard it. It says, in effect, that we oilmen, lumbermen, cowmen, sheepmen, and chambers of commerce must rally to the defense of the Forest Service against the base charge that it is no longer capable of protecting its forests against us.

The multiple-use and crown-colony arguments, related but not entirely compatible, may be answered together. The answer to the first is that under the Wilderness Bill the wilderness areas would still enjoy multiple use, if the word "multiple" implies, as I think it does, more than two. The customary uses of any national forest, in order of their practical importance, are watershed protection, recreation, conservation, selective logging, grazing, and mining. To these must be added some "impractical" uses. A forest, and most especially a wilderness forest, is a vast research laboratory, a vast schoolroom, a vast nondenominational church. These functions are a good deal less trivial than the resources of timber, minerals, and grass that may be locked up. But a succession of biologists, scholars, and nature lovers who testified to these values of wilderness brought indulgent smiles to the faces of the rough riders at the meetings.

To Desmond, multiple use has always meant *my* use, and it has been the Forest Service's administration of a true multiple use policy that has

made it so many enemies in the entrepreneurial West. It does not, apparently, signify to Desmond that any wilderness, under the Wilderness Bill, would still be protecting watersheds, providing healthy recreation to hikers, campers, climbers, fishermen, and hunters, providing a habitat for many species of wildlife, offering in its ecological islands invaluable facilities for research, preserving an incomparable outdoor schoolroom, and giving a spiritual refuge to people harried and driven by the civilization men have created. No matter: if it doesn't have grazing, lumbering, and mining, it isn't multiple use. It is all recreation, and pretty silly recreation at that.

And now the cry that the West is the plaything of absentee bureaucrats. Listen to ex-Senator Watkins of Utah, who until his defeat in the last election was one of the bitter antagonists of the Wilderness Bill and probably still is. He is speaking at the Senate Committee hearing of July 23, 1958.

> In the States where much of the pressure for this legislation is coming from, Federal ownership of land is almost negligible. These States control their lands and their resources and, sometimes, exhibit little concern for the crown colonies in the West. Sometimes it seems that our neighbors in the East and South would like to hamstring economic development in the West, leaving this vast area as a playground, and an undisturbed national playground . . . Paradoxically, the West also is where the great bulk of our already reserved wilderness is located. Many States of the East and South have eliminated their wilderness and lost public access to their lakes and to their seashore. Now they become concerned about wilderness preservation, not in their own back yard where the need is apparent and urgent, but way out West where the buffaloes roam and the deer and the antelope play. While it may come as a surprise to some of the wilderness-loving city slickers of the East that we in the West love the wilderness too . . . Out our way millions of acres are already quite adequately preserved and reserved in the wilderness state, and probably always will be, because nature has made it that way . . . May I interpolate here that I have flown over a great part of the United States, and I have been greatly impressed with the vast amount of acreage in the East, in the Midwest, and in the South which is not already occupied for some proper, useful purpose. A lot of areas in the East and in the South can be put into wilderness reserves . . .

If he had worked at it a month, Mr. Watkins could not have incorporated into two paragraphs a more representative list of the hostilities, misconceptions, and lamentable myopias that befog the wilderness issue. In the first place he hasn't the slightest conception of what a wilderness is; it is evidently a place with grass and trees on it, or a place where you can get down to the seashore, or a 160-acre county park. He thinks the East and South should get busy and create some and set it aside. He thinks that millions of acres out his way are "quite adequately" reserved as wilderness and "probably always will be because nature made it that way." For the record, apart from national parks and monuments there is one wilderness area reserved in Utah, the High Uintahs Primitive Area, and it contains 240,717 acres. It is not reserved because nature

made it that way, but because a Forest Service order made it that way. And it is not adequately reserved, because another order—under promptings from people like Mr. Watkins—could unmake it. One should recall, too, that a few years ago Mr. Watkins himself was fighting to unmake the Dinosaur National Monument wilderness.

In his bitterness at what he calls crown-colony status, Mr. Watkins expresses a characteristic attitude of western business, especially resource business. He resents federal ownership of the public lands and makes the usual assumption that they should properly be handed over to the states. He forgets that they remain federal property because decades of land laws assisted by monumental graft could not dispose of them; he forgets that if the states had not renounced title to them upon entering the Union they would have been stuck with them, and with an absolutely impossible job of management. For this is the arid West he is speaking of, and in the arid West the abuse of land has immediate and catastrophic consequences, and the characteristic western users of land have known how to do nothing but abuse it for quick profit.

Mr. Watkins hates it that Utah should be a "playground" for eastern city slickers. But does he, and does the Salt Lake Chamber of Commerce who echoes him, want those city slickers to stay home? Does he really? It is true that Utah, like any other western state, depends on its natural resources for its economic stability. But the few resources, mainly timber and grass, in the High Uintahs Primitive Area would not tip the balance much either way, except as the area, preserved as wilderness, draws a continuing stream of fishermen, campers, and hunters—many of them city slickers from out of state who can be soaked with a high fee for a deer tag. It may well turn out that in the long haul one of Utah's most productive and profitable resources will prove to be its incomparable scenery, much of which, by now, an amiable Uncle Sam has set aside and is taking care of in the public interest.

I love ex-Senator Watkins' state, but not his state of mind. He speaks narrowly and parochially and irritably; he suffers from a characteristic Utah xenophobia; he suspects eastern slickers of manipulating his state's interests, just as he suspects that villains in California fought the Echo Park Dam because they want to steal Utah's water. Unhappily, his state of mind is not uncommon in the Rockies.

Yet if it had not been for federal ownership and control in the arid West, even more of the West than has already gone would have blown eastward toward the Missouri. There would be more stripped and dangerous hillsides, there would have been more frequent and more disastrous floods. Game would be scarcer because its habitat would have been partly destroyed. The streams would be roily far longer past the opening of trout season. The West's roads would be worse because the states

would have had to build them themselves. And as for payrolls, those who say the West depends entirely on resource industries forget how vast, in the aggregate, is the federal payroll in all the public lands states.

It is not a persuasive argument that Mr. Watkins permits himself. For the resource industries and the chambers of commerce have consistently screamed about crown-colony status when times were good, and hollered for federal rescue when things went bad. Between times they trade the South peanuts for sugar, flood control for reclamation. In many ways the mountain states are not unlike the South; they evince a persistent, acrimonious lust after states' rights, which in the West are inextricable from natural resources and the public lands. Mountain West and South are alike too in the possession of a regional guilt and a tendency, under criticism, to embrace it as a moral crusade. If the South had black slavery, the West has had its crimes against the land. And the effects of that criminal and ignorant disregard of consequences would have been even worse if the states' rights argument had ever fully succeeded.

Using any stick to beat the dog with, the anti-Wilderness Bill people suggest that everything be tabled until the findings are in from the National Outdoor Recreation Resources commission authorized by Public Law 85–470. The argument goes that because the commission's investigations would involve the forests and their wilderness areas as well as the city, county, state, national, and private parks, monuments, and recreational areas, we should wait to see if we need any wilderness at all. But the wildernesses are already wildernesses; they are simply not yet a system, and not yet protected by federal law. The Wilderness Bill would change the recreational picture not at all. And anyway, this tabling proposal is another stall, and another attempt to suggest that the sole purpose of wilderness reserves is recreation.

Which it is not. At present there are only two places in the United States, outside of Alaska, where you can walk and be more than ten miles from any road. Even one of those the California Highway Commission seems to want to split in two by a trans-Sierra highway. We have arrived, moreover, at the point where an exploding population threatens to overrun the continent and the planet. The population of California, which passed 15,000,000 a few months ago, will be twice that in two decades. The thirty or forty thousand people who jam Yosemite Valley's eight-square-mile floor on a peak summer day may be twice that many even sooner. The millions of cars on the roads will be tens of millions. A nervous man might even fear for the carbon cycle: we may need our wilderness for making oxygen.

Carbon cycle or not, there is no alternative to preserving the wilderness that we still have, and since much of it is in federal ownership there is no agency but the United States Government that can and will do it. The nature lovers who testified to the spiritual value of nature unmodified and unspoiled by man, and who drew smiles from the rough riders at the hearings, were not talking nonsense. In the long run they were not being impractical. They were speaking of something absolutely vital to many of us now, and something that will be three times as necessary to our grandchildren. Their concern was not a selfish attempt to grab off a special and exclusive form of recreation, but the abiding concern of thinking and feeling people to preserve what helps keep men human, to save our contact with the nature of which we are a part.

The rough riders have never exercised themselves overmuch about the future, or about any considerations except economic ones. They don't conceive that they owe the future anything, and neither did their grandfathers: hence the half-ruined natural endowment of the West that we have inherited. What agitates the bird watchers is something that the rough riders cannot even comprehend; it is the absolute reverse of narrow self-interest; it is the hope that by work and by renunciations today they may give their children and coming generations, in their coming age of steel and concrete and plastic and crowding and the accumulating carbon compounds of human and automotive waste, some humble notion of what it is to be a man, an evolved mammal, part of the natural world.

If the Wilderness Bill loses or is stalled again in committee, the nation will have lost, the West will have lost, the future will have lost. In spite of former Senator Watkins' feeling that we ought to help establish a few wildernesses in other parts of the country and let the West get on with its lumbering and mining, it has never been man's gift to make wildernesses. But he can make deserts, and has.

Wallace Stegner

This Introduction first appeared in the Sierra Club Bulletin, *May 1959, under the title* The War Between the Rough Riders and the Bird Watchers.

HOW MUCH WILDERNESS CAN WE AFFORD TO LOSE? *is an address delivered by Mr. Zahniser before the Second Biennial Wilderness Conference, in Berkeley, March 30–31, 1951, and printed in the* SIERRA CLUB BULLETIN, *April 1951;* WILDERNESS—CONFLICT AND CONSCIENCE *by Mr. Brower, and the papers by Mssrs. Talbot, Sumner, and Leopold are all addresses delivered before the Fifth Biennial Wilderness Conference, in San Francisco, March 15–16, 1957, and printed in the* SIERRA CLUB BULLETIN, *June 1957;* DE FACTO WILDERNESS: WHAT IS ITS PLACE? *by Mr. Brower and the paper by Mr. Kilgore are addresses delivered before the Fourth Biennial Conference on Northwest Wilderness, in Seattle, April 14–15, 1962, and printed in* THE CONGRESSIONAL RECORD, *May 17, 1962, in the remarks of the Honorable John D. Dingell, Congressman from Michigan.* WILDERNESS AND MODERN MAN *by Mr. Collier is reprinted from the author's book,* FROM EVERY ZENITH, *Chapter XXIV (Denver, Colorado: Sage Books, 1963).*

I

CONFERENCE PAPERS AND RELATED STATEMENTS

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HOW MUCH WILDERNESS CAN WE AFFORD TO LOSE?

Howard Zahniser

It is a great privilege for me to attend this second wilderness conference sponsored by the Sierra Club and to feel again the warmth of a California welcome.

I am glad that life has brought me in touch with Californians, that I have been able to be here in your native surroundings occasionally and also that I have had the privilege of associating in Washington with Californians who have even endured the East in their devotion to national interests. I am thinking especially at this time, as are many conservationists, of Newton B. Drury, and I should like to express here my appreciation of his California contribution this past decade to the cause of wilderness preservation in our national park system. My confidence in his integrity and devotion has been deep and proven, and it is firmer now than it has ever been. It is a good example of how an association with Californians has enriched me and supported me with good examples, inspiration, and encouragement. I am sorry that Mr. Drury is terminating his directorship of the National Park Service, but I am glad to be able to congratulate California on his assumption of leadership in your state park program—which, indeed, is of great importance to all of us who are concerned with wilderness.

The Wilderness Society and all the other conservation organizations that have their headquarters in Washington, D.C.—or in Chicago or New York—have the deepest respect for the Sierra Club—for its integrity, its strength, its skill and effectiveness, as for its generosity in coöperation.

I know of no organization that is so genuinely regional and so thoroughly national. I suppose that is partly because it is the good fortune of the Sierra Club to have as its regional concern a wilderness treasure that is truly national, but it is also due, I am sure, to the intelligence and devotion to the national interest which characterize the leaders and members of the Sierra Club.

I am happy indeed to be here to profit by these associations, to be able thus to keep the more vital these relationships that are so strengthening to me, and to represent, if I may, the interest and gratitude of many others who have not been able at this time to journey so far. Our undertaking to preserve wilderness in the public interest for the sake of everyone for all time—but at present with the understanding and support of such a small proportion of our citizens—certainly charges us with a heavy individual responsibility. We can mutually discharge this responsibility only if conservationists everywhere are concerned with wilderness anywhere—anywhere that it still lives.

As I see it, we can no longer afford to lose wilderness. We have already used up and lost so much that any further loss is a sacrifice, a sacrifice to be made only under the most extreme compulsion. The tenseness of our present situation as civilized, cultured human beings is a result of the fact that so many of us do not sense that sacrifice.

Two years ago, after I had confronted the first wilderness conference dinner with a discussion entitled "Wilderness: 1969?" and was safely on the train returning east, I was very much impressed by a report I came across in a March 28, 1949, issue of *Life,* of an "Intercollegiate Bull Session" on the future of the human race. I was especially interested in the dictum of one described as a "young man from Cal Tech." He said:

"Riding home on the bus after school gives me an odd feeling—here are all these people, . . . and they don't realize what is happening . . . What's actually going to happen is that everything is going to be different. . . . There's going to be a bigger difference between human customs in 1969 and today than there is between today's customs and those of 1949 B.C. . . . When I'm at school and things seem pretty routine I forget what we're doing and where we're going—and then I'll think of gene studies that probably will change the human race in the next few generations, or of the electronics boys at M.I.T. and their servomotor robots, or of the computer men at Guggenheim Lab who already live in a world of 10-miles-per-second speeds and man-made satellites, or the biochemists at Chicago to whom life is a series of electronic and molecular relationships . . . and all the rest of us—patient, relentless, and ruthless. Then I ride with these people on the Pasadena bus and think,

'Don't you realize what we're doing to you and your world? You ought to be excited and frightened and be preparing for it'—and then I realize that they're doing just the right thing, taking it day by day."

Such was the vision of 1969 of the young man from Cal Tech. He apparently did not think at all of the Sierra wilderness that we had been planning for 1969. "Everything is going to be different," he said.

The Need for Reassurance

As I read that two years ago, I wondered, and I still wonder. I wished I could know the young man from Cal Tech, and all the young men whose so stimulating opinions made that "Intercollegiate Bull Session" such an interesting magazine feature, and the people in the buses too. I wished I could offer an assurance that all is not going to be different, that the community of life on the earth which interdependently expresses in so many ways the solar energy of our universe is going to persist and evolve on and on into an eternity of the future. I wish I could suggest that what the un-named young man from Cal Tech and the people on the bus needed was an awareness of this kinship of all life that could indeed be theirs with a journey to the wildness so near them. I dare say that there may have been those on that Pasadena bus who did know the wilderness and could themselves have reassured the young man.

We do need this reassurance. We do need to guard ourselves against a false sense of our own sufficiency. We need to draw ourselves constantly toward the center of things and not allow our eccentricity to carry us off on a tangent, off toward an increasing unhappiness.

We are a part of the wildness of the universe. That is our nature. Our noblest, happiest character develops with the influence of wildness. Away from it we degenerate into the squalor of the slums or the frustration of clinical couches. With the wilderness we are at home.

Some of us think we see this so clearly that for ourselves, for our children, our continuing posterity, and our fellow men we covet with a consuming intensity the fullness of the human development that keeps its contact with wildness. Out of the wilderness, we realize, has come the substance of our culture, and with a living wilderness—it is our faith—we shall have also a vibrant culture, an enduring civilization of healthful citizens who renew themselves when they are in contact with the earth.

This Is What We Lose

This is not a disparagement of our civilization—no disparagement at all—but rather an admiration of it to the point of perpetuating it. We like the beef from the cattle grazed on the public domain. We relish the

vegetables from the lands irrigated by virtue of the Bureau of Reclamation—our Bureau of Reclamation, too, we should recall now and then. We carry in our packs aluminum manufactured with the help of hydroelectric power from great reservoirs. We motor happily on paved highways to the approaches of our wilderness. We journey in streamliner trains and in transcontinental airplanes to conferences on wilderness preservation. We know the exultation of the music and the spoken words (some of them anyhow) marvelously brought to us by radio. We nourish and refresh our minds from books manufactured out of the pulp of our forests. We enjoy the convenience and comfort of our way of living—urban, village, and rural. And we want this civilization to endure and to be enjoyed on and on by healthful happy citizens.

It is this civilization, this culture, this way of living that will be sacrificed if our wilderness is lost. What sacrifice!

Our only hope to avert this loss is in our deliberate effort to preserve the wilderness we have. The ramifications of our developing enterprises are such that only those areas which are set aside for preservation will persist as wilderness.

It behooves us then to do two things: First we must see that an adequate system of wilderness areas is designated for preservation, and then we must allow nothing to alter the wilderness character of the preserves.

We have made an excellent start on such a program. Our obligation now—to those who have been our pioneers and to those of the future, as well as to our own generation—is to see that this program is not undone but perfected.

In our marvelous national park system; in the wilderness, wild, primitive, and roadless areas of our national forests; on extensive tracts of Indian reservations; in certain units of the national wildlife refuge system; and in state parks and some others too, we have areas that have either been set aside as wilderness or that are being protected in a way that safeguards wilderness.

The process of designation of areas of wilderness for preservation, however, is not complete as yet. There are still some to be added—especially grassland, seashore, and desert. There is no doubt, so far as I know, about the correctness of the designation of any of the areas now being preserved. There are, I understand, some boundary adjustments that need to be made for certain areas that were established without opportunity for adequate care as to exact boundaries. There are zoning questions in some of our parks. There are some additions that can be made to establish areas. There are private holdings within these public areas that should be acquired.

These aspects of the perfection of the designations should be cared

for in a persisting program. And the other potential units in this system of wilderness should be sought out as soon as possible.

A most determined effort should be made to provide for the security of these areas as wilderness. At present there are so many test cases on our hands—test cases of the public interest with reference to wilderness preservation when in conflict with other enterprises—that conservationists have not had the time or energy to pursue the all-important positive program that alone can prevent the constant recurrence of these controversies.

Hence it is of great importance to treat such a campaign as that now current for the defense of Dinosaur National Monument as a positive drive to attain this better security. The proponents and supporters of the Echo Park and Split Mountain dams in this monument have been impressed, I am sure, by the indignation and protests aroused as the public has become aware of the issues. Wilderness preservationists should not, therefore, relent before the full objective is realized, should not stop short in this effort to obtain not only the elimination of these two dams but also the firmer protection of all the wilderness we are preserving.

As soon as we have a clear consensus of conservationists we should most certainly press steadily for the maximum security possible; that is, congressional establishment of a national wilderness system backed by an informed public opinion:

1. A bill to establish a national wilderness preservation system should be drawn up as soon as possible with the joint coöperation of the federal land-administering agencies and conservation organizations.

2. It should affirm the national policy to preserve such a wilderness system.

3. It should define the proper uses of areas within the system and should provide for the protection of areas from inconsistent uses.

4. Areas to be included in the system should be specified in the bill, and provision for additions to the list of areas by executive order or formal designation by the Secretary of Agriculture or the Secretary of the Interior should be included, with the further provision that the removal of any area from the system can be effected only by Congress.

5. The bill should make clear that no changes in jurisdiction would be involved and that no new land-administering agency would be established. The agency administering an area designated as a unit in the national wilderness preservation system would simply be charged with the responsibility of preserving its wilderness character. National forest areas would continue as at present but with the guarantee of perpetuity that Congress can give. National park and monument areas would continue under the administration of the National Park Service. Such na-

tional wildlife refuges as would be included would be preserved without developments and installations altering their wilderness character.

6. In other words, each area in the system would continue to serve the peculiar purpose that it has, or would have, in the program of its particular administering agency, but every agency would be charged with the responsibility of preserving the wilderness character of any area of the national wilderness preservation system in its custody.

7. A commission or board should be set up to conduct a survey in coöperation with land-administering agencies, to recommend to Congress any necessary adjustments in this program, and to prepare—or coördinate the preparation of—maps and other materials for the information of the public with reference to this wilderness system.

8. If there is not soon a consensus of conservationists with regard to such a program, there should be set up as soon as feasible a national wilderness resources policy commission to formulate a positive program.

We should keep moving in a positive direction!

Let us try to be done with a wilderness preservation program made up of a sequence of overlapping emergencies, threats, and defense campaigns! Let's make a concerted effort for a positive program that will establish an enduring system of areas where we can be at peace and not forever feel that the wilderness is a battleground!

A week ago tonight, in Constitution Hall in Washington, D.C., I saw in color motion pictures some of the still-living wilderness of Africa—with its lions, and elephants, giraffes, impala, and thousands of zebra. As it happens, I do not ever hope to go to Africa, but I certainly have been enriched by its wilderness. So can it always be in our culture, if we will it so.

Even as the scenes of a once-in-a-lifetime experience, even as the objective reality that gives life to motion pictures, photographs, writings, and other works of art, the areas of true wilderness will serve their continuing purpose of maintaining our relationships to the primeval, the elemental, the real—whether this relationship at any given time be recreational, scientific, historical, environmental, or devotional.

That night [in Constitution Hall] I had with me my five-year-old Edward. His multiplicity of questions about all that exciting wildness in Africa kept me as fully occupied on our way home as the perplexity of this question has tonight. Finally (we were driving home, just the two of us), wearied, he lay down in the car seat beside me. In a moment he sighed and said, "Daddy, was I born to know very much?" And I said, "Yes, I think you were, born to know very much."

And so were we all, I think, and to me it seems that the wilderness is certainly an essential part of this inheritance of knowledge that is rightfully ours.

WILDERNESS—CONFLICT AND CONSCIENCE

⇝ *David R. Brower*

You like wilderness, let's suppose, and you want to see some of it saved. Not just a thin strip of roadside with a sign saying "Don't pick the flowers." Not just a wild garden behind the hotel or a pleasant woods within shouting distance of the highway. But *real* wilderness, big wilderness—country big enough to have a beyond to it and an inside. With space enough to separate you from the buzz, bang, screech, ring, yammer, and roar of the 24-hour commercial you wish hard your life wouldn't be. Wilderness that is a beautiful piece of world. Where as you start up a trail and your nine-year-old Bob asks, "Is there civilization behind that ridge?" you can say no and share his "That's good!" feeling.

Yes, a place where you can rescue your *self* from what Ortega calls the *other*—all the extraneities that pile on you too deep. So deep, to quote my wife Anne's *bon mot,* that "the life you lead is not your own."

So you want a place where you can be serene, that will let you contemplate and connect two consecutive thoughts, or that if need be can stir you up as you were made to be stirred up, until you blend with the wind and water and earth you almost forgot you came from.

You like wilderness, then, and need it. And suddenly you encounter a practical man who never learned that he needs it too, or doesn't remember. It doesn't take you long to encounter him, because there are a lot of him, many of him in places of influence, all adding up to a political force that can jeopardize wilderness if it chooses to, and choose it seems to.

You can malign him, and insure that the conflict will continue over the need for wilderness. But let's assume you'd rather align him, get

straight to his conscience, end the conflict, and save the wilderness. Then what?

I have tried to develop one approach. Let's call it a starting point, and let us hope that it will suggest to you a different and better approach to a goal that happily still remains and should persist.

Let's address ourselves to a very important question. How much right does one generation have to another generation's freedom? Can we of this generation, in conscience, pay for our freedom by mortgaging the freedom of our children? Is it our ethic that we are privileged to write the rules to which all the subsequent generations of our civilization must be committed, and by which they must abide, irrespective of their own wishes?

Thomas Jefferson, long ago, said that one generation could not bind another; each had the right to set its own course. Go out across this land and try to find someone to argue that he was wrong. You won't find a taker. It is the national consensus that we don't have this right.

But deeds are not matching words. This generation is speedily using up, beyond recall, a very important right that belongs to future generations—the right to have wilderness in their civilization, even as we have it in ours; the right to find solitude somewhere; the right to see, and enjoy, and be inspired and renewed, somewhere, by those places where the hand of God has not been obscured by the industry of man.

Our decisions today will determine the fate of that right, so far as people of our time can pass opportunity along to our sons. Apathy here can mean that we pass them a dead torch. Or we can keep it aflame, knowing that this is a very special torch that man cannot light again.

Belatedly we are becoming generally concerned about our scenic resources and about resolving conflicts that must be resolved if we are to retain islands of open space in the sea of tomorrow's civilization. The early history of civilization dealt with the problem of finding enough enclosed spaces—caves in the beginning, then crude shelters, then walled cities, followed by the early beginnings of suburbia when there was no longer room enough within the walls for all the people of the cities. Only recently have we begun to change our concern. The problem seems no longer to be one of enclosing space, but of leaving enough of it open to meet our needs for greenery and for every man's "slice of sky" Wallace Stegner speaks of. We know we need some of this in our own garden for the edges of our daily existence—something to look out upon at breakfast, or before dinner. We need more space near by for our weekends, where on a March day a boy may fly a kite, or a family may picnic and stroll. For our holidays we need accessible open space within range of

our faster transportation and better roads, bearing in mind that we shall soon have more three-day weekends than we have now. For our lengthening vacations we'll need the big spaces of national parks and wilderness.

These outdoor spaces—daylight-saving *plots,* weekend and holiday *areas,* and vacation *regions*—won't set themselves aside. We have to plan for them as the population avalanche flows over the land, and plan generously if civilization is not only to improve living standards, but also to sustain man's standards for life.

The Sierra Club has been concerned with man's use of wildlife, wilderness, and national parks ever since John Muir founded the club in 1892 with the general purpose of exploring, enjoying, and protecting our scenic resources. In none of its 65 years has the club been free of the controversy that results when one seeks to protect what another would exploit. That has meant 65 years' experience in trying to resolve a crescendo of conflicts—experience that we can draw upon as we consider today's major controversies and the still more critical contests that tomorrow will inevitably bring.

These conflicts will underline the need for conservation education; more than that, they will require the education of conservationists. There's quite a difference.

On the one hand, *conservation* alludes to management of the commodity resources, to using them wisely that they may last longer. We all approve of conservation, even as we approve of motherhood—even while we go on expending our nonrenewable resources at a constantly accelerating rate (more in this century than in all previous history). We intend to do better. In the end, however, we know that no matter how well we manage our commodity resources and our raw materials, time will catch up with us. Conservation means spreading a given resource over a given period of time. Time finally runs out and the resource is gone, or at best, is a rarity.

On the other hand, the *conservationist,* and I stress the *-ist,* has come to be known as the man who is concerned with preserving for all our time certain important scenic resources—our resources of wilderness, parks, wildlife, and the recreation and inspiration man may always derive from them. Always, that is, if each generation, including ours, takes care of the few places we have left where those resources still survive.

To use a figure, there are two sides to conservation just as there are two sides to a coin. On one side, tangible quantities; on the other, intangible qualities. Each side is presently oriented to look in opposite directions. Yet each must live with the other. We may need a coin of transparent material, so that each side can look in both directions.

The conservationist, then, is the man more concerned about what certain natural resources do for his soul than for his bank balance. Every man is a conservationist part of the time in his thinking, if not in his action.

There are a great number of people who are conservationists in their action also—more than 11,000 [now 25,000] in the Sierra Club, and about two million who are loosely organized in the Natural Resources Council of America. The numbers are growing more rapidly than is our population. Every time a scenic hill is bulldozed for a new tract of houses, or a new freeway blots out more acres of green quietude, or a new dam inundates a trout stream, or there's a vacant space where a great tree was, or another whooping crane turns up missing—every time one of these things happens, the conservationist force grows stronger as more people realize the need to protect a rarity from extinction. Theirs is not a force of blind opposition to progress, but of opposition to blind progress. Theirs is a force determined to see that progress does not take away important things from mankind, forever, in order to benefit a few men now.

The conservationist force, I submit, is not a pressure group. It merely demonstrates the pressure of man's conscience, of his innate knowledge that there are certain things he may not ethically do to the only world he will ever have, and to the strictly rationed resource of natural beauty which still exists in that world. The conservationist force does not need to be pressed into action. It needs only be made to realize what is happening, and its voice of conscience speaks.

That sounds simple. It isn't. I need not go into any detail to convince you of the difficulty of making people realize something—of their making it real to themselves, not imaginary, but actual. You know how hard it is to be heard in the clamor around us. And we all know how hard it is to get the voice of conscience to speak audibly enough to have effect. For example, how many times a week do you feel something needs to be done for the public good—and how many of those times can you find the few minutes to do something about it yourself?

So the conservationist force, for all its conscience, still needs to realize more, and to speak more. Conservation controversies, like prefabricated telephone booths, are ubiquitous. All of them are conflicts for space. The resolution of these conflicts should depend upon the answer to the question— Who needs the space most? Unfortunately, many of the decisions are being made now, and irrevocably, not on the basis of who needs the space most, but on who got there first with the most dramatic plan of development and the biggest earth-moving equipment.

It would be helpful, in resolving the coming conflicts for space, "to have on hand a battalion of men with the wisdom of Solomon." Not hav-

ing even one Solomon, let us nevertheless see what we can do to: consider a few of the conflict types in some detail; list the tools we have for resolving conflicts; try to arrive at the criteria for decision; and suggest some courses of immediate action. This is a big order. If in the course of this I make noises like an oracle, please forgive me. To be brief, I'll stick to direct sentences. In your own mind please add "it seems to me" to each sentence.

What Are Some of the Conflicts?

Man Against Numbers.—Man has demonstrated, as clearly as he has demonstrated anything, that he is prolific enough to explode across the land—not with the rapidity of an epidemic, of course, but more thoroughly and with far more lasting devastation of the natural resources of the only world he has yet contrived to live upon. We can label this statement "neo-Malthusianism," but the labeling solves no resource problem. The members of what we could label the "Science-Will-Save-Us-Society," will have quite a burden to prove that science really can save us. Science can do wonderful things, but our scientists can only begin to gather data on the new problems civilization presents every year, and in turn can only begin to publish and interpret their data.

A serious problem confronting scientists, and one upon which no conservation organization I know of has adopted a policy, is the population problem—an especially touchy cat to put a bell on.

Natural scientists know full well what happens when there is an explosion of population in deer; the deer themselves lose vitality and starve by the thousands because they have overloaded their range. Mankind has a range, too, and it has a maximum carrying capacity consistent with a good life—a life with enough resources on hand for all to spare us the final quarrel over them. We may argue about how many people the range can withstand, but we can hardly argue that there is no limit. We have strong intimations, as we watch the sea of smog rise around us, that the limit is approaching faster than we thought, and from a different quarter. It may well be shortage of clean air, not of water, that brings us to a sudden halt in California.

Whatever the limiting factor, and though our engineers cover the earth with a mezzanine floor, we know that we shall come to a day when we can no longer double our population, or even add to it, without lasting regret. We could continue to worship Growth until midnight of that last day.

But there is a brighter possibility and it is worth working hard for. When the light turns red, you stop before you hit the car ahead. If you don't, you're in trouble. The margin between us and trouble is our scenic open space and our wilderness. We vaguely sense the shape of this need;

later and wiser men will know it surely, in the crowded world we are letting their heritage become. For them, we could choose to skimp a little on gadgets, even our most elaborate gadgets, even as they shall one day be forced to skimp, and with so much less wild world to repair to.

The brighter possibility, then, is to look for substitutes before we have completely used up a given resource. Perhaps we, as present stewards for the natural resources of all generations, could revive the practice of tithing—saving ten per cent for the future. Not ten per cent of what this generation received from the last, but a tithe of what was here, in our best estimate, when white men began to spread over this continent. If that sounds overgenerous, remember how few the generations who have used up to ninety per cent, and how many generations will need what's left, to leaven their otherwise ersatz world.

Water Development.—Where water development and wilderness preservation are in conflict, we can remember that gravity will take water through parks and wilderness and out to places where man wants to use it or store it. Optimum development downstream can preclude irrevocable damage to wilderness values upstream. Quite often it will cost less; but even if it were to cost more in dollars, it would save what dollars cannot put together again.

The conflict with hydroelectric development is more direct, for man wants to get energy from the water that gravity brings down. Alternate sources of energy are coming fast, however, and we can afford to wait for their perfection rather than sacrifice scenically important streams and valleys. We need to remember that our choice to preserve is a temporary determination at best. Our choice to sacrifice, however, requires all future men to live by our choice. We will have written the rules for them, and indelibly.

Wood Products.—The Timber Resources Review recently completed by the Forest Service has demonstrated that our principal opportunity to meet the future's need for timber lies elsewhere than in the virgin forests of our best wilderness and park lands. The National Lumbermen's Association has gone even further. Its recent releases have stressed the need for expanding the timber market and have stated that we are growing one-third more timber than we are harvesting; they therefore opposed the timber-reserve part of the Soil Bank. Plywood people want much less plywood imported. Moreover, in the immediate future we can see a minor revolution in the wood-products industry in the promise of the chipper, particle board, and alternate sources of cellulose that will have to substitute for virgin-forest timber sooner or later.

In the absence of a policy which provides specific criteria for determining how much wilderness we shall need to preserve, and in the presence of abundant promise of substitutes for wilderness timber, and con-

sidering also the many values for mankind the wilderness forest affords —multiple use of the highest, most diverse order—we should not be hard put to decide the course to vote for in the timber-versus-wilderness conflict.

Highways.—These had better go around our scenic gems, not through them, unless we want the face of our land crisscrossed by high-speed routes to beautiful places that might have been. We have the potential of drowning ourselves with automobiles, of so overloading our hardened arterials that first the pleasure of driving will disappear—and then the motion!

Our children shall need parklike places where they can have a change of pace and mood—where they can spend a good chunk of time and become part of the scene for a while. It will not be enough for them to screech to a stop because of a traffic light or traffic jam, then roll down the window for a quick sniff of the great outdoors before the man behind blows his horn. Many people fear that our engineers are more skillful at moving vehicles than at moving people, and that a lot of space is being too freely used up in the process.

We are enamoured of horsepower, of highways and freeways, of covering more ground more quickly and with greater safety. In our ardor, however, we may well consider that it is very hard to undo a freeway and impossible to redo a wilderness.

Other Conflicts.—There are other conflicting demands for our present scenic open spaces, conflicts brought on by our needs for flood control, industry, mining, food and forage and fiber, by urbanization, and by recreation too. There is no need to go into detail about them now. They all come from real needs for things we want and believe in. But with reasonable restraint we can eat cake and have some too—have conveniences *and* wilderness, so long as we remember that there are some areas where convenience costs too much.

What Tools for Resolving Conflicts?

What tools have we already fashioned, or what can we invent, to resolve these conflicts?

Facts.—First, we need facts about resources. Many organizations are assembling them, and more help is needed. For scenic resources, the organizations prepared to do the best job nationally are the National Park Service, which has a program based upon a 1936 law and Mission 66; the Forest Service, which has now come up with its Operation Outdoors; and the Fish and Wildlife Service, now developing its own Operation Waterfowl. California is off to a good, if late start with its imminent recreation plan now before the Legislature. Many other agencies are in-

volved, and coördination is essential. The proposed national Outdoor Recreation Resource Review will help get this started.

Interpretation.—But facts are not enough. One of our unheralded national surpluses is the surplus of undigested data which, if laid end to end, would reach too far. A fact has meaning only when it gets from producer to market, only when it is published and interpreted well. We are badly in need of equitable interpretation of the facts we are gathering about our natural resources.

Most important, as pointed out in *Scenic Resources for the Future* *, "We must to the best of our ability project all future needs on the same screen with the same projection distance and same focal length of lens for each scene, and also, to the best of our ability, with the same illumination. Let the light be a cool one."

So far we have had quite a disparity in distances, lenses, and light. In California, for example, we know that water development is going to make heavy demands upon what land we have for other purposes. To project that scene, we have elaborate equipment that has been derived from an eight-year effort at a cost of better than $1 million per year. But water isn't all we'll be needing in the year 2,000, it is only one of many things.

What kind of equipment do we have, whether in California or in the country as a whole, to project our other needs? By comparison, we can project our needs for scenic resources with little more than a 19th century magic lantern, lit by a lone flame. Unless we can demonstrate the need for equity, we stand a good chance, so far as this particular conflict goes in California, of having the best-watered, most populous, crowded, biggest grossing, State in the Union—and the least beautiful one. Our white-water streams will be so fully harnessed for use that you can't see running water; each pleasant little valley in the hills and mountains will be replaced by a fluctuating reservoir, its water-shed cropped and gravely impaired; and suburbia will spread almost everywhere else. Bear in mind that our State Director of Water Resources, in opposing the current wilderness bill, listed in his reasons for doing so that the bill would hamper California Water Plan hopes for dams or water structures in Lava Beds and Joshua Tree National Monuments and Yosemite National Park, as well as the Plan's hopes to use the Marble Mountains Wilderness as a dumping place for spoil. We don't need water that badly. And no bill would stop these things if the people should ever really need them.

Public Information.—The public needs information, too. All our facts and interpretation will mean little if the public isn't taken into confidence. After all, the public must consent to whatever proposal we come up with. "The engineering of consent" is the concise definition of public

* *Sierra Club Bulletin,* December 1956.

relations. Meetings such as the Wilderness Conferences are a starting point. What we do after we leave the meetings will determine how far the cause moves.

Legislation.—An informed public will want a clear statement of policy, which is a statement in law, and will want continuing legislative interest in what happens under the policy. Congress, for example, is the nation's board of directors. It should reserve the power to review irreversible staff decisions which lead to the extinction of a given resource. Right now the federal staff can extinguish wilderness with a pen stroke—and the pen is striking.

Administration.—The executive branch, armed with administrative regulations based upon law, will supply the preponderance of protection, for only this branch of government has staff enough to do the job full-time. Loosely worded regulations, which were adequate for a loosely populated land largely free of conflict, will have to become specific—and must in turn be based upon more specific law if we are to avoid a dangerous overconcentration of discretion. For instance, there will need to be a clearer understanding of the full meaning of multiple use, and of the limitations of multiple use. This has never meant a great number of cooks working over the same pot of broth although many people think so.

Education.—The legislative and executive branches, with help from lay organizations, will then need to continue the effort of public education—the engineering of support. The need for this is stressed whenever any two people discuss the subject of conservation, and sometimes even when the discussion is only a monologue. We have a long way to go, or to say it another way, we have a great opportunity.

These are the tools. They are all necessary. Those named last will be of little use if we don't have equitably interpreted facts to start with.

What Criteria for Decision?

Let us go back briefly to that matter of correctly interpreting facts, for it is from this interpretation that we shall have to derive our criteria for decision.

We must make one decision before we shall know how to sort out our facts. Shall we on the one hand resurrect the rejected philosophy of *après moi le déluge,* or on the other hand shall we seek the exact opposite for those who follow us—for them a world as beautiful as ours? I don't think this will be a hard decision to make but we shall need to keep reminding ourselves that we made it.

Since wilderness is our primary concern here, let us list the points we need to consider in weighing wilderness preservation against a potential conflicting use. This weighing will set a pattern for the scenic resources

which are less fragile than wilderness. And wilderness conflicts are hardest to solve and most critical.

1. The wilderness we have now is all that we, and all men, will ever have.

2. Much of our wild land which is presently used for its wilderness will be lost to wilderness use. It has not been dedicated, and remains only by accident or oversight, or because of the slight value of its raw materials. When it goes, its human load must be added to that placed upon dedicated wilderness, wherever it is left.

3. We don't know what the carrying capacity in terms of people is or may be, either for accidental or dedicated wilderness—carrying capacity that should be expressed in two ways: (a) What human use will a place withstand and still recover naturally, and (b) how many people will it withstand at a given time without their eliminating its aesthetic value at the time?

With respect to recoverability: We must not be fooled by vastness of a total area. The key terrain, or the heartland, or the living space, or the camping base—whatever you may call it—is that rare, scarce oasis that has real scenic appeal, that has water and shade, wood and forage, that is gentle enough in slope to camp on, and that possesses a wild setting (without which one might as well camp in Central Park). There is precious little key terrain, even in the vastest reserves. And what key terrain there *is* is likely also to be a good reservoir site.

With respect to aesthetic capacity: Wilderness cannot be false-front wilderness and fulfill what man needs in it—no green-belt fringe obscuring a periodic sea of stumps. There must be assurance that a man's wild slice of sky won't have too many elbows in it, or administrative conveniences either. There must be room enough for time—where the sun can calibrate the day, not the wristwatch, for days or weeks of unordered time, time enough to forget the feel of the pavement and to get the feel of the earth, and of what is natural, and right.

4. Whatever the carrying capacity turns out to be, we can predict that it will be limited—so limited that wilderness can probably never again be abundant enough for everyman to walk in it. But after all, only the small child must handle a thing to know it; adults need only look. Those in between need a little of both. So some people will be able to walk in wilderness and most of them will be the better for it. Some may wish to but never make it. Some may not think they care to at all, nor expect their sons to care. But wilderness must be there, or the world's a cage.

5. It follows that our expanding population will need more wilderness than exists, and far more than has yet been set aside for preservation.

6. Therefore, we can conclude that any step to discard our vestige of dedicated American wilderness, or to prejudice its protection, is prema-

ture at this time. And knowing this, we are obligated to insure its protection the best way we know how—by law, regulation, and understanding.

To those who for materialistic convenience want to extinguish just part of that dedicated wilderness we can site Solomon's precedent. We all remember his most famous decision, when one mother wanted the child divided, and the other wanted the child spared, even if she herself were not to have it. Let the judgment favor those who want the wilderness to remain whole. A decision adverse to that whole can never be rescinded.

Suggestions for Immediate Action

It will take time to seek out facts and reach decisions in the long-range public interest—three years at the very least. In the interim an immediate holding action is needed, and I have a brief suggestion. Let federal and state executives appoint task forces who can set about promptly to put up three kinds of signs in places where it is the consensus of conservationists that they belong:

"Sample, Don't Sell" should be posted for each of our crown jewels—our parks, dedicated wilderness, or their equivalent in scenic caliber.

"Closed During Inventory" ought to be posted on certain areas in controversy in which the scenic, recreational, and scientific values are probably high, lest we find that the forthcoming inventory of our scenic resources consists of checking off our choicest treasures as they are carried out the door.

"Business As Usual" signs can be posted everywhere else.

In any event, some kind of moratorium is essential. A three-year wait on some of our development projects is not long compared to the eternity our descendants shall otherwise have to live by any mistakes we make out of premature commitment. For example, consider the tragically premature decision at Hetch Hetchy, in Yosemite National Park, a controversy that is all water behind the dam—the dam in Hetch Hetchy Valley from which San Francisco gets the same water it could have diverted outside the park.*

(*Scenes from Yosemite Valley*)

This is the story of two yosemites. One is the Yosemite Valley everybody knows. It is one of the most beautiful valleys in the world. Hand-

* At this point in his address Mr. Brower displayed a film produced by him for the Sierra Club in 1955, entitled *Two Yosemites,* the narration for which we include here.

some cliffs and waterfalls in a charming setting. Trees to frame the vistas, meadows to look at and to look from, natural beauty under foot and to walk by—a setting with open space, living space, that a million people see and enjoy every year.

(*Falls, reservoir, and dam, Hetch Hetchy Valley*)

The other Yosemite was only a little less beautiful than this one and a few miles to the north—Hetch Hetchy Valley. Wapama Falls was one of Hetch Hetchy's finest but now the setting has gone.

(*Moccasin Creek; Hetchy Hatchy again*)

You see, Hetch Hetchy was a remarkable storage vessel, with a fine damsite where the walls crowded together. It was dammed to enable Moccasin Creek powerhouse, in the Sierra foothills, to generate some kilowatts for San Francisco—at the cost of the nation's scenery. They said the dam would be "easily covered by grasses and vines."

John Muir, the Sierra Club, and other conservation groups fought hard against this destructive park invasion. San Francisco argued that without this water it would wither; it must have this cheap power; there were no good alternatives; and the dam would enhance the beauty of the place and make it more accessible. "The greatest good for the greatest number." Teeming San Francisco against the few people who had yet visited Yosemite.

(*Details, drawdown area near dam*)

Not one of the city's claims has proved valid, but 40 years ago San Francisco won. This once-beautiful valley, part of a national park, was flooded.

We took these pictures May 13, 1955. The reservoir was down 180 feet, but 60 feet higher than it had been May 1. In June it would probably fill, then start right back down again, for it is a fluctuating reservoir as most power and storage reservoirs must be. Its zone of ups and downs, between high water and low, is a region of desolation. Nothing permanent can grow in it.

(*Many scenes from the area at the head of the reservoir exposed by drawdown*)

This zone is ugly enough at the dam. At the head of the reservoir it is worse. There this much drawdown means two miles of desolation.

We walked a mile up into it. Although it was still early in the season, 1600 people came into Yosemite Valley that same day. Two came to Hetch Hetchy—and we didn't come for pleasure. Who would?

What you see here is what you see at most fluctuating reservoirs and what no one should see in a park. Stumps where the basin was cleared,

stumps and more stumps, exposed and reexposed until silt finally buries them. The stream—it was one of the most beautiful in the Sierra—is silted in. Tuolumne Falls is covered. The banks are silted. The flat living space is silted, and as soon as the surface is dry enough, it is on the move—a dust bowl, from the silt that sloughed off the canyonsides when the reservoir was full. The river brings still more each year, and wind-blown scum collects in the eddies of what was a sparkling river. A dead butterfly joins the dead scene. The rising flood will soon bury a lonely flower, and ebb to exhume each year the wedges a woodcutter left forty years ago. Forty years . . .

(*Rusty wedges on stump; silt blowing by stumps and mountain vistas*)

Forty years! . . . They had circulated touched-up pictures of an artist's conception of a pretty lake, always brim-full. San Francisco's mayor wrote, "The scene will be enhanced by the effect of the lake, reflecting all above it and about it, in itself a great and attractive natural object." Secretary of the Interior James Garfield testified: "In weighing the two sides of the question, I thought that it should be resolved in favor of San Francisco, because this use of the valley would not destroy it as one of the most beautiful spots in the West. It would simply change the floor of the valley from a meadow to a beautiful lake."

Congressman Englebright added: "As . . . a lake, it will be one of great beauty; there will be fine fishing in it, and boating, and so on, which would make the lake an improvement to the park." . . .

There were alternate sites, other sources of water and power too, the real motive, so that the day of atomic power *could* have arrived with Hetch Hetchy still beautiful. But the Secretary of the Interior accepted the city's claim. He had made a "careful, competent study" and no other way would do. . . .

The alternatives, which would have harmed no precious scenery, remain unused. And for the million people who come to Yosemite Valley each year to enjoy it, perhaps a thousand approach Hetch Hetchy—to turn away from its tragic drabness. Why should they stay? To pack in and camp here? To let the children play in the meadows? To fish in this stream? To breathe the clean mountain air? Could this ever have been beautiful?

(*Details just above high water mark, near dam*)

Above the waterline is a clue to what beauty could have remained. Colorful lichens, miniature gardens of mosses and ferns—these bring life to the rocks and rills. Near the promontory where a summer home was

Once Is Too Often: *A Picture Story*

This *Was* Hetch Hetchy

In the early part of the century the late J. N. LeConte, explorer and hydraulic engineer, made a remarkable series of photographs of Hetch Hetchy Valley, in Yosemite National Park, before water and power seekers of San Francisco sought to improve it.

Hetch Hetchy was not quite so beautiful as its neighbor, Yosemite Valley, but it had much of Yosemite's charm and living space—great oaks, verdant meadows, tree-framed waterfalls, and one of the finest streams in all the Sierra Nevada. Kolano Rock was one of the handsome landmarks under which hundreds of thousands might have camped in these days of overcrowding in our parks.

The following four photographs give a sample of the beauty that existed—the spacious floor, the cascades, Wapama Falls, and the living setting for spectacular glacier-carved walls.

. . . Yes, This *Was* Hetch Hetchy

But it had a good dam site. True, others existed downstream—and still exist today—and the water would flow down to them, for diversion to a distant, growing city. Hetch Hetchy, though, was at a higher elevation, and the greater height could produce a little more power. A great battle waged, but there was not yet a National Park Service, and conservation organizations were few. As James D. Phelan wrote in 1911, espousing the dam in this valley, ". . . its beauty will be enhanced . . . making the valley more sightly and accessible. . . . There can be no question but that the beauty of the scene, with a dam easily concealed by grasses and vines, will be enhanced by the effect of the lake reflecting all above it and about it and will be in itself a great and attractive natural object."

The Valley was made more accessible, but now for every million who come to Yosemite Valley to stay, a mere thousand come to Hetch Hetchy reservoir to turn around and leave.

but at the dam in 1955, photograph by David Brower →

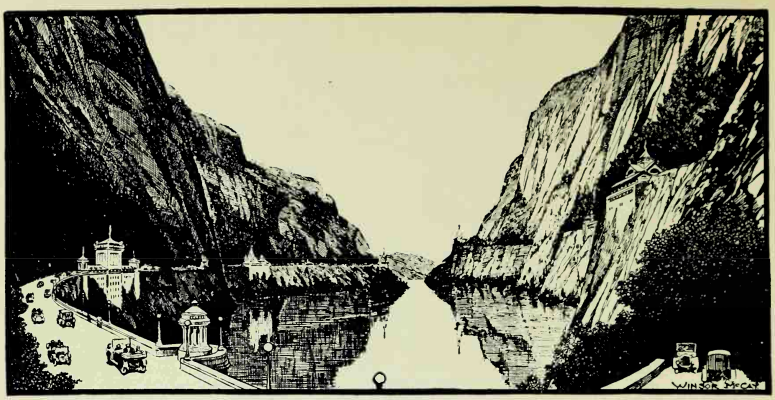
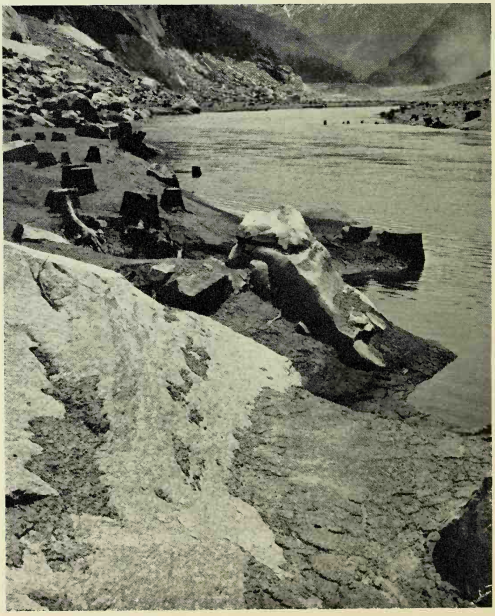


illustration from San Francisco Examiner *placed before each member of Congress*

The Promise in 1913:

"the beauty will be enhanced"

The Result



at head of reservoir in 1955 by Philip Hyde

built for city officials, well above the fluctuation zone that dominates the broad vista, is a pitifully small flat area—too small for camping and almost as unattractive as this dead zone. But on a nearby slope along a dead-end trail we can find remnants of the former beauty of the place: black oaks blossom in the springtime, yellow pines grow above a golden carpet, flowers bloom under the trees and light up the cool shade under a few dripping granite boulders. There's a temporary stream that runs a few feet through this isolated garden and drops into a desolate zone of rock, sand, and stumps. A patch or two of grass remains above the high water line, but there will never be grass enough nor vines enough to conceal the dam. We found that even this little bit of grass was spoiled by the high-water debris and the monotonous view.

Across the valley the main falls are still there, shining in the springtime. But where is the setting? Where is the pulsing heartland of this place? It is gone. It is gone beyond the recall of our civilization—thanks to the dam where plaques praise the men who took so much from so many for all our time.

(*Details of riverbanks, Yosemite Valley*)

How much they took we can't show, but we know from the men who saw Hetch Hetchy before it was destroyed that Yosemite Valley is its nearest counterpart. Hetch Hetchy cliffs were like this—free of the bleach and water stains, unspoiled, set in forests, forests where you can walk by the shaded streams.

Yosemite tells what a setting means everywhere you look. Here you can see what the trees which are now stumps ought still to be doing for Hetch Hetchy—providing a place to stroll, to relax, to listen, to see clear water glide over clean rocks, to catch the sun sparkle, to breathe fragrant air, to rest where the river pauses, to feel renewed, to know the beauty of natural things.

There isn't enough of this in Yosemite to meet today's needs, let alone tomorrow's. The future will find abundant power outside the parks—parks for which there are no alternatives. So many of the parks are already overcrowded—certainly Yosemite is. And Hetch Hetchy could have given to millions, for ages, much of what Yosemite gives. Its waters could have remained an inspiration in their beautiful natural setting and then be put to practical use downstream—just as Yosemite's river is.

The cliffs, the meadows, the groves, the streamside, the whole setting —what do they mean to man? Something that you can neither measure in dollars nor replace with dollars. Hetch Hetchy's setting is irretrievably lost to all of us and to all generations. It need not have been.

(*Trees by Yosemite stream; stumps in Hetch Hetchy*)

In 1916 Congress put up a sign to prevent any more tragedies like this one. It was the National Park Act, which says to park exploiters, "Do not enter." We'll do well to remember Hetch Hetchy, where once was too often.

There was one unclouded crystal ball four decades ago, and William E. Colby, now Honorary President of the Sierra Club, was looking into it when he wrote the membership on the last day of 1909:

"I predict that long before Hetch Hetchy could possibly be needed for a water supply for San Francisco, the travel thither will have become so great and its needs as a campground, particularly in relation to the surrounding park, so urgent, as to preclude the possibility of its use as a reservoir. What I am opposed to is the determination right now that the Hetch Hetchy shall be flooded fifty years from now. I feel that the decision ought properly to be reserved for those who live fifty years hence. We surely can trust that their decision will be a wiser one than any we can make for them."

The decision, we know, would have been entirely different in 1959. But how many wrong decisions are we rushing to make now that will erase other Hetch Hetchys for all time? Our children deserve better.

We could sum it all up this way:

This, our civilized world, is the house that Jack built. We like most of it.

And this, our living wilderness, is the garden that Jack hasn't built on, the open space and the wild-land beauty that graces his house. It is his only garden, and we know that there is no more where it came from.

Jack is very capable; he can doggedly expand his house, build a three-car garage, and pave the remaining space except for an outcrop or two of rock in the northwest forty. And we can see that he's on the verge.

If only Jack would pause a moment, to look up and to see! He isn't going to like the end result himself, and his children surely will prefer to inherit a balanced estate, for they will have no place else to go.

WILDERNESS OVERSEAS

⋙ *Lee Merriman Talbot*

The modern philosophy of wilderness as a public trust is largely American. Most present-day provisions for wilderness throughout the rest of the world stem from the example of our own national parks. Indeed, many charters of wilderness areas throughout the world acknowledge this origin, although their subsequent development and improvement may have no connections with the United States.

Perhaps foremost of the world's true wilderness areas are the National Parks of the Belgian Congo. Their 6,500,000 acres conserve intact the flora, fauna, and topography representative of Central Africa. In 1925, after an earlier visit to the national parks of the United States, King Albert of Belgium established the system. Although national parks in name, they are actually true wilderness areas, with human entrance and activities strictly controlled. Consequently they provide some of the few areas in Africa where one can see examples of land unaffected by modern man. The park system provides a magnificent perspective of Central Africa's environments, from mountains near the equator whose snow-capped peaks rise above 16,000 feet and whose lower slopes are the home of the pygmies and the mountain gorilla, to the true tropical rain forests in whose perpetual twilight dwell Africa's shyest and least-known wildlife, and to the arid northern plains where the fifteen-foot-high elephant grass, perpetuated by annual fires, provides shelter for a varied wildlife. Here is the last safe refuge for the rare northern white rhinoceros.

As Africa becomes more intensively developed these wilderness parks are assuming greater scientific and aesthetic importance. The park system has developed under the powerful leadership of Belgium's Dr. Victor Van Straelen and his international National Parks Administrative

Commission (a board of trustees with both Belgian and foreign members). Economic and political pressures to open these lands to "improvement" have been great in the past. They will be much greater in the future.

The one major type of non-desert land in Africa not represented in the parks of the Congo is the open veldt, or plains land. The finest remaining example is the Serengeti Plains of Tanganyika. Here is probably the greatest remaining concentration of plains wildlife in the world, in some of Africa's most spectacular scenery. The old problem of overgrazing is acute.

The most striking topographic feature of the area is the Ngorongoro Crater. Standing on the rim at 8,000 feet altitude, one can look 12 miles across to the far side and 2,000 feet down to the lakes and hills on the crater floor. Ngorongoro is in a cluster of ten peaks, some almost 12,000 feet high. Below them to the north and west lie the Serengeti Plains, nearly 3,000 square miles of wild free prairie.

Grandiose though the scenery is, the area is most noted for the annual migration of the plains animals. They come from the thousands of square miles of brushland beyond the plains, joining into great herds en route, eventually filing out into the plains spreading out evenly from horizon to horizon. The animals have no fear of automobiles. Safe in a safari car one can see the whole drama of plains life from birth to death. Once on the plains, all animals, predators and prey alike, drop their young.

Here one can also see the Masai and their vast herds of economically worthless cattle. They have already overgrazed and laid waste too much of the 23,000 square miles of Tanganyika they control, and as they move into the Serengeti they bring the desert with them, and the wilderness and wildlife must bow before their herds. Just last year an American wildlife expedition helped to halt a political move to open the plains to unrestricted Masai grazing.* In many ways this area is illustrative of the threats to what is left of the world's wilderness.

Another of the world's outstanding wilderness areas, equatorial again but 5,000 miles east of Africa, is Java's Udjun Kulon Reserve. It is a bulbous peninsula reaching from the western tip of mainland Java into the Sunda Straits. The area was established about 1915 by the Dutch as an "integral nature reserve"—part of an extensive system of parks, monuments, and reserves originally patterned after America's national parks.

The Udjun Kulon protects most of the last three or four dozen Javan rhinoceros left in the world, along with representatives of the rest of the

* The expedition was sponsored by the Wildlife Management Institute and the American Committee for International Wild Life Protection, backed by Mr. R. Arundel and organized and led by the author.

rich Javan wildlife, including banteng (Javan wild ox), rusa deer (similar to our elk), mouse deer, barking deer, wild pigs, monkeys, leopards, and tigers. Deep in the interior are giant banyan trees—Javan equivalents of our Big Trees. High in the sunlight world of the forest's upper branches lives one of the most varied and gorgeous bird faunas to be found anywhere. Among the new governments of southern and eastern Asia, Indonesia alone has established a Nature Protection (Conservation) Department whose duties include maintenance of her parks and reserves.

Although the roots of giant banyans twine around remains of villages destroyed by Krakatoa 74 years ago, today Udjun Kulon is a true wilderness. This, in fact, is the situation as it exists in most wilderness areas in the world. Except for the polar regions and some of the more inaccessible mountain areas, it is extremely difficult to find land anywhere that has not been altered by man. The history of the world's tropic lands is one of continual shifting back and forth between human occupation and wildness. One doesn't have to look for such evidence at Cambodia's Angkor Wat or Central America's Mayan-pyramid cities, rising through the tangled roots and trunks of otherwise virgin-appearing forest. Throughout most of the world's tropic lands, the trees or grasses are growing out of lands once used and abandoned by man.

The only practical access to Udjun Kulon is by boat; the staff of the reserve lives on a nearby island and the only obvious human modifications are the patrol paths along the coasts and a few openings made in the nearby jungle to provide better habitat for the banteng and rusa.

India has a wilderness tradition at least 2300 years old. One of her finest, present-day wilderness areas (one of the very few) is the Kaziranga Wild Life Sanctuary in Assam. The Kaziranga lies at the foot of the Himalayas on a broad flood plain of the Brahmaputra River. A 160-square-mile jungle of elephant grass, broken by low, tree-covered ridges, it was set aside some 50 years ago to protect the great Indian rhinoceros. Here the last real concentration of these animals is carefully protected, along with a representative sample of the region's wildlife.*

The area can be entered only in dugout canoe or on elephant back. Yet, wild though it is, visible from any high point in the sanctuary are the houses and cultivated fields of the local people. The Kaziranga is typical of wilderness throughout most of the world—it is a small, isolated wild island in the midst of a great agricultural or industrial sea.

Most of us think of threats to wilderness in terms of industrial exploitation. We think of neon, crowds, and machinery; but throughout

* Cf. the author's "Stalking the Great Indian Rhinoceros," *National Geographic Magazine,* March 1957.

most of the world the threat, although equally real, is much less spectacular. It is merely the result of increasing population and land use.

A striking example of man's growing impact on the land is the Great Thar Desert in western India. At the time of Christ, Indian rhinoceros roamed in grass jungles in the middle of what is now desert. And for the past 80 years the desert has been advancing into the rest of India at the rate of one-half mile a year along its whole long perimeter. That means that in 80 years, an estimated 56,000 square miles, or an area equal to that of Wisconsin, has been turned into shifting sand.

The mechanics of this land degradation seem clear. The starting point is the mature forest with its wildlife, fertile soil, and abundant water. The lumber is cut, often clear-cut with young growth destroyed. The land is then cultivated for a time, then grazed and overgrazed. There can be no replacement of trees or grass, for everything green is eaten by ravenous livestock. When there is nothing left for cattle, goats take over, and when the goats have left, nothing remains but sand or blowing dust. This story holds true, with the same plot and characters, but with different stage scenery and costumes, throughout much of the world.

To illustrate the effect of this land-use pattern on wilderness, let us consider Kashmir, the ancient Moguls' "paradise on earth." This is a lovely mountain land in northernmost India, lying at about the same latitude as San Francisco, and bordered by Tibet, China, and Pakistan. The British with the local maharajah set aside magnificent wild areas here. But when independence came, here as in most former colonies, the tendency during the first burst of nationalism was to reject all that smacked of the previous "imperialism" or "colonialism." Parks and wilderness areas were thought of as something kept away from the people by the former rulers rather than as a resource maintained for them, so the first reaction was to destroy them, to take "what was rightfully ours." On top of this came political and military unrest with a side effect of a large population suddenly armed but with little discipline. Among the results have been large-scale poaching leading to the virtual extermination of the Kashmir stag, heavy forest cutting, and overgrazing.

Through much of Kashmir up to and above timberline one runs into herders and livestock. In less than ten years much of this land changed from dense conifer forest or park lands like the best of our Sierra or Rockies, to what are approaching high-altitude deserts, with the vegetation pulled apart, cut, overgrazed, and burned out—and the soil too.

Economic need, destructive land use, and destructive nationalism form a constantly recurring pattern deadly to wilderness. Until all three of these factors are somewhat ameliorated it is hard to be optimistic about the future of wilderness lands throughout the world.

As my last example I would like to mention an area not usually thought of as living wilderness—the Middle East. Much of it is arid desert, but when Moses led the children of Israel through the Sinai wilderness, it was a live wilderness with wildlife and trees. Today one can go for days through that country and never see a living thing. The mountains above the Promised Land were cloaked with dense forest, with pine, oak, and cedar; and in the more open areas, Asiatic lions stalked abundant wildlife. Today these mountains are largely dead stone skeletons, and the last small remnant of the Asiatic lions is to be found 3,000 miles to the east. There are still two more or less living wilderness areas left—in northern Lebanon and western Syria. Until recently, protected by inaccessibility and unsettled conditions, the forest here remained intact; but within the last few years, lumbering and cultivation have begun to move into these last forests. When the land's fertility has been cropped out and the trees have been cut off, the crops will give way to grazing. Once overgrazing has gone far enough, the starving animals preventing grass, brush, and tree reproduction, the area will assume the desert aspect of most of the Middle East.

This remnant biblical wilderness illustrates one of the very real economic values of wilderness that, perhaps, is not often thought of in our country. It would be easy to say, looking at most of the desert Middle Eastern lands, that this area never did support much life, or that the old records of forests and crops are wrong, or that if there were trees here once there has since been a climatic change. But in these remaining wild forest areas we have the living proof that this was not the case. North Lebanon and western Syria provide a point of reference by which one may judge the condition of the land as it was, see what man has done to the rest of the land, and therefore see what can be done with what land is left.

For the United States, wilderness is a powerful diplomatic weapon. Most of us are aware of the often less-than-friendly attitude toward the United States in many countries, and we are aware of the fact that all too often we are considered an industrial nation with a dollar sign for a heart.

I have found in a number of countries, especially those of Asia and Africa, that one of the most effective answers to this belief is our system of wilderness areas and national parks and what they stand for to us.

About three hundred years before Christ, India had what corresponds to a system of wilderness areas and national parks. This was established by India's beloved Emperor Ashoka. The fact that our allegedly materialist country has led the rest of the world in the re-establishment of this idea is a deeper bond with Indians than millions of dollars in aid.

The United States has been a modern day pioneer and leader in wilderness areas. But with this leadership comes responsibility. What we do with our wilderness areas may determine what others can do with similar areas in their countries. We have pioneered also the international approach to parks and wilderness areas, and this seems the only effective way to assure wilderness in many parts of the world.

In the international view, our wilderness is a great responsibility; but it is also a great opportunity.

WILDERNESS AND CULTURE

A. Starker Leopold

In search of security, comfort, and ease, man has labored in the past few thousand years to conquer and civilize the wilderness. Having done so, and while enjoying the fruits of physical well-being, he developed a taste for activities that satisfy his soul as well as his body. To these activities we apply the collective term "culture." The relationship between culture and the original wilderness is perhaps worth exploring.

Historically speaking, the relationship has been an inverse one—culture and the humanities have flourished as the wilderness was conquered. This is easily understandable in the early stages of social advance. The cave dweller, faced with the daily task of gathering fresh food, had scant time for letters and arts, although all primitive people have left expressions of these. But as man institutionalized the exploitation of the earth around him, his daily bread became assured, and leisure time, at least among the upper social classes, permitted more indulgence in the pleasures of cultivating the mind.

Periodically through the pages of history we meet indications of surges of liberal thinking about man's activities and social relationships. The term "humanities" means the study of human values throughout history. Beginning with the Renaissance and the revolt against religious pedagogy, men of learning looked back to the philosophers of earlier eras for leads to what is important and what is worth knowing. But not often were man's relationships to nature seriously explored. When at last the study of natural phenomena was accepted as worthy of the dignity of the sages, the objectives were principally practical, not philosophical. Modern medicine, engineering, and agriculture are a few of the applied fields of natural science that have flourished and have accounted for much of the recent advance of civilization, without, however, any com-

mensurate advance in the philosophy of man's relationship to the world around him.

It is only in very recent years—less than a century in fact—that an attentive attitude toward undisturbed and unutilized nature has begun to emerge. It is surprising that in the long history of man's conquest of the earth there is no evidence of sustained effort on the part of any people to preserve native landscape for its own sake, until our own national park system began to take form late in the nineteenth century.

There were of course elaborate programs of preserving and culturing certain elements of flora and fauna for purposes of man's use. For example, one of the most complete plans of wildlife management ever devised was observed by Marco Polo in the realm of Kublai Khan. The Great Khan maintained fields of grain and adjoining shelters for the use of partridges and other wild animals, so that he might find good sport when he went afield to fly his falcons. Most of the so-called parks and forests of mediaeval Europe were similarly managed for specific purposes—usually game and forest products combined.

Throughout history there are records of zoos and botanical gardens maintained by rulers and men of means, proving that people had an avocational interest in natural history even if they lacked appreciation of the undisturbed wilderness *per se*. Curiously, two of the most elaborate zoölogical parks were on this continent in the capitals of the Aztec and Tarascan empires in Mexico, although these peoples were not far advanced by European or Asiatic cultural standards.

But there is a world of difference between the creation of a zoo or a botanical garden and the maintenance of an undisturbed natural area. In a zoo man is rearranging and managing nature for his own interest and amusement. In the wilderness he is showing respect for nature as it existed in the first place. It is the emergence of this element of *respect* that deserves special attention, for it marks a turning point in man's view of the earth.

That the peoples of the world were receptive to a philosophy of nature preservation was manifested by the way the national park idea swept from continent to continent once it was announced in the United States. In a few decades natural preserves of one sort or another were created in many parts of the earth. European countries that had no wilderness left at home applied the idea to their colonies and dependencies. The British Empire was outstanding in this regard, but Germany, Belgium, Holland, and some others followed suit. Many Latin American countries and even some independent nations of Asia and Africa joined in the new movement. The dedicated areas went by many names—parks,

game refuges, crown forests, or simply nature preserves. But the basic idea was the same—the preservation of unexploited and more or less unmanaged natural areas.

The implications of this new look toward the outdoors can scarcely be overemphasized. From a tradition of conquest and subjugation of nature and the wilderness, extending back to the earliest pages of history, man suddenly finds within himself a desire and an obligation to preserve untrammeled some remnants of the natural scene he has labored so long to bend to his material needs. That all nations have not succeeded equally well in bringing about this reform is beside the point. The issue is one of intent and acknowledgment of something that is right, even if it is not completely attainable.

Coming back to the origin of this idea in the United States, I have difficulty in seeing any logical reason for the sudden and inexplicable emergence of so sweeping a reversal in traditional philosophy at the time and place where it occurred. One would have supposed that appreciation of wild country would have emerged first in some overpopulated region where wildness was at a premium. Instead, Yellowstone National Park was created in 1872 when the United States was still considerably underpopulated and major effort was being directed to the conquest and settlement of the West. Yet the Congress and the people readily accepted the idea of setting aside this large block of country for recreational needs which at that time scarcely existed. Thinking as a biologist I see this emergence of a new idea as comparable to a macromutation in organic evolution—one of those sweeping shifts of evolutionary direction that come suddenly, and without forewarning, like the emergency of the flatfishes from the normal teleost line. There is no gradual approach.

Once born, the concept of nature preserves spread rapidly, and at the same time evolved. Let us consider the evolution of thought regarding the national parks of this country—prototypes of all to follow. The initial idea in the first half dozen parks was to preserve for public access such natural geologic features as geysers, hot springs, spectacular mountains, and canyons. Fauna and flora were less seriously considered. The first botanical features to be emphasized were the big trees on the west slope of the Sierra Nevada. Consideration of native animal life came later, and then on a classified basis. The "good" species like deer were protected, but the "bad" actors, including wolves, coyotes, and mountain lions, were controlled in accordance with the common-sense policy of the day. Bears were fed garbage and elk were fed hay. There was a carry-over of the outdoor-zoo idea which took some years to die out, during which period wolves and lions unfortunately were exterminated in

many Rocky Mountain parks. This event has led directly to the difficult problems of overpopulation by deer and elk that plague the National Park Service today.

Likewise, the idea of leaving substantial blocks of park land undeveloped and in true wilderness status came long after the parks were created. The initial hope was to build roads, railroads, and hotels anywhere within the parks that people wanted to go. But this utilitarian concept of park development and management gave way gradually to the informal zoning idea that guides park programs today.

In short, the national parks as preserves of unmanaged nature did not spring forth in full bloom. They tended always toward naturalness, except in the heavily developed centers of activity where, unfortunately, the trend up to now has been strongly in the other direction.

There is still one striking exception in the trend toward naturalness in park preservation—the complete exclusion of fire from all areas, even those that burned naturally every year or two before becoming parks. Fire is declared evil and destructive, just as coyotes and mountain lions were designated as evil and destructive in the parks 25 years ago. Yet many forest types that are to be perpetuated developed with fire as a dominant molding element. I am convinced that ground fires some day will be reinstated in the regimen of natural factors permitted to maintain the parks in something resembling a virgin state. Both aesthetic considerations of open airy forest versus dense brush, and assurance of safety from conflagration of accumulated fuel will force this issue sooner or later.

Even as the National Park Service was being created, other types of natural areas were coming into being in this country. Some of the national wildlife refuges were created. The great system of Forest Service wilderness areas came soon after, along with state and municipal parks, and various types of national preserves controlled and operated by a host of agencies, organizations, and even individuals. We take for granted that preserving native associations of fauna and flora is in the public interest and is to be encouraged. The basic concept is scarcely open to challenge any more in this country—we disagree and wrangle only over what areas are to be preserved, by whom, and how it should be done.

And so it is in much of the rest of the world. It is agreed that most renewable natural resources are to be used, wisely and with due provision for sustained yield. But some areas are to be excluded from this plan and kept for the wonder and edification of the citizens. These two concepts are not always realized, but they are recognized, on an international

level. The natural scene now commands respect. Its preservation is accepted as moral and proper. From the Serengeti Plain to the Great Smokies, from the Brooks Range to Tierra del Fuego, conscientious people are struggling to preserve samples of native landscape. Often the pressures of economic need and human populations make the cause seem almost hopeless. Yet my over-all impression is that the effort is gaining in strength, not losing.

Wherein lies the appeal of this movement? What forces motivate its spread?

The need is not solely for recreation in the sense of new playgrounds for people to get some fresh air. In many countries the preserved areas are used scarcely at all for recreation by the citizens. Nor are the educational and scientific values of wilderness, of which we often speak, weighed heavily into the equation.

The only possible force that could be motivating the effort to preserve natural areas is the moral conviction that it is right—that we owe it to ourselves and to the good earth that supports us to curb our avarice to the extent of leaving a few spots untouched and unexploited.

When one considers the spread of this idea over the earth in sixty-odd years it is cause indeed for wonder. Here is an addition to the accepted mores of people in all continents, imposed suddenly on codes of ethics that have been evolving for many centuries.

And so when we find cause for alarm and discontent with the progress of the wilderness movement it may help perhaps to take the long view—to see how astonishingly far the idea has progressed in the few decades of its existence.

I think that when future philosophers scan back through the records of human history and human thought they may put their finger on this century as a time of outstanding advance in man's feeling of responsibility to the earth. Whether man can succeed in preserving an attractive and livable world is the problem that lies ahead.

ARE BEAVERS TOO BUSY?

Lowell Sumner

Have you been back recently to the place where you spent your early years? Have woods and fields been replaced by suburbs, busy highways, factories? Would you say these new things have created more freedom or beauty in the places you once knew—more tranquility and happiness?

Whatever your opinion on this score, you probably will agree that the changes since your early years have brought more people, more complicated living conditions, more stress. Biologically, these three situations—*more people, more complications, more stress*—are three interrelated phases of a single developing situation—the population increase. Let us consider how they add up to what are commonly called "the pressures of civilization."

Every day there are one hundred thousand more people in the world than there were the day before—four thousand every hour. Every day there are seven thousand more mouths to feed in the United States (*Newsweek,* June 6, 1955). Every morning in California alone there are 1600 more people having breakfast (Hugh Brown, 1956, p. 301). Today the world population is about 2½ billion; by the year 2,000 it is expected to be nearly five billion (Harrison Brown, 1954, p. 99).

In 1955 an international symposium of seventy scientists attempted the first large-scale evaluation of "Man's Role in Changing the Face of the Earth." They produced 1200 pages of staggering evidence (Thomas, 1956) that the results of man's activities are now comparable in magnitude to those of major climatic, ecologic, and geologic forces.

From the Arctic to the Antarctic Circle man has brought about profound changes in forests, grasslands, wetlands, and tundra; in streams

and coastlines; in soils and mineral resources. Even the earth's atmosphere has been altered—by the consumption of coal, petroleum, and other fossil fuels which have raised the carbon dioxide content of the air by ten per cent in the last century—possibly with long-range effects on the earth's climate and eventually even on the chemistry of the ocean (*ibid.*, p. 489).

These findings underline the urgency of protecting our relatively wild areas while there is still time; they may also cause us to wonder toward what destiny our planet-load of humans is drifting.

A biologist looks at the human population increase as he would the increase of other forms of life. All are subject to the same fundamental biological laws governing the availability and rate of use of raw materials. We humans may forget these natural laws, or postpone their consequences by complicated stratagems, but in the end we cannot change them any more than the motion of the earth.

When we are feeling the pressures of civilization and pondering their causes, a visit to a wilderness or natural area helps not only to restore our tranquility, but also to give a better understanding of our place in the scheme of things. For natural-history observations in such places help us to see our civilization as basically similar to the communities of other creatures.

By following the ups and downs of other animal populations, whose shorter life cycles swing through changes which require centuries for us, we gain more insight into our own destiny.

To illustrate this point we might take almost any animal community, from ants to elephants; but let us consider a colony of beavers—since they love to conquer nature with feats of industry and engineering—and note how the rise and decline of such a colony parallels the rise and fall of human civilizations. Then if our reasoning appears sound, we may conclude that if wilderness experience and insight are good for you and me, surely they are basic to the education of leaders of nations and makers of public policy.

When the beaver community is young and vigorous but not yet at maximum size there are ample food supplies, plenty of dwelling sites, and enough leisure to provide every family with a gracious living; there is sufficient screening cover to give protection against natural enemies and enough undeveloped but economically justifiable dam sites to keep all engineers happy.

In short, at this stage of the beaver community's history there is for each individual the fullest outlet for his natural inclinations and desires without injurious competition and strife from others of his kind. This situation offers for beavers the happiest and most tranquil way of life.

For beavers this is history's Golden Age of self-expression, of freedom from want and fear.

What happens to such a community as time passes? With no more foresight than is usually shown by nations, the beaver community just keeps on conquering nature and multiplying. Let us say that in ten generations the community triples in size. This brings us to the first of the three phases that I mentioned at the outset:

Phase I: More People (Beavers).—As the multiplication continues the community sooner or later reaches the point where the environment cannot go on supporting more beavers at current multiplication rates. The shortages of basic natural resources begin to be felt. This is:

Phase II: More Complicated Living Conditions.—For the beavers entering this phase the sudden shrinkage in the supply of aspens, alders, and willows is at first almost obscured by what would appear to be the highest peak of industry and prosperity ever enjoyed by the community. If they were human enough to make forecasts and speeches, the top planners and economists of the beaver world would assure the community that with housing starts at an all-time high, unemployment never before so low, foreign enemies effectively held in check by the strongest defenses ever built, and the biggest crop of beaver babies in history, the economy was climbing to ever-higher levels.

But aspens, alders, and willows are as basic to beaver civilization as forests, soil, and farm products are to ours.

Imperceptibly at first, then more swiftly, the complex problems gather. Each month the beavers must travel farther from home and protective cover to get the logs they need for food and shelter. One of the vital canals built in earlier times for transporting raw materials gradually is stripped of its protective defense of willows because now these must be used up for food—thus, when the pinch comes, guns are exchanged for butter. But this renders the canal increasingly unsafe to use because it is close to the habitation of an enemy who, though once not greatly feared, now seems to be constantly lying in wait—a bear that walks like a man.

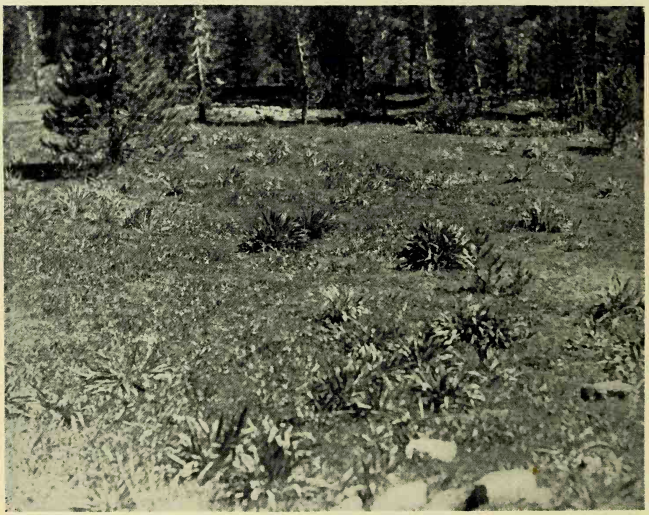
Some beaver consideration is given to digging an alternate canal in less hostile territory, but by now so much time and energy is required of the workers in the long haul of scarce materials from outlying territories that the community lacks the vitality (the beaver power) to undertake such a costly alternate project. It is decided to wait until the current public-works budget of time and energy can be better balanced.

What the beavers do not comprehend is that the remaining food supplies that a new canal might transport still would be insufficient to main-

1. Early stage of meadow formation through the slow filling in of a mountain lake — Goat Mountain, Kings Canyon National Park.

2. Mature wet meadow, with normal life expectation of perhaps two hundred years but here showing first small premature invasion of forest trees as a result of intense grazing — Williams Meadow, Kings Canyon National Park.

3. High Sierra meadow grass once looked like this, but such a sight is rare today — Moraine Meadow, Kings Canyon National Park, where no grazing was allowed for five years.

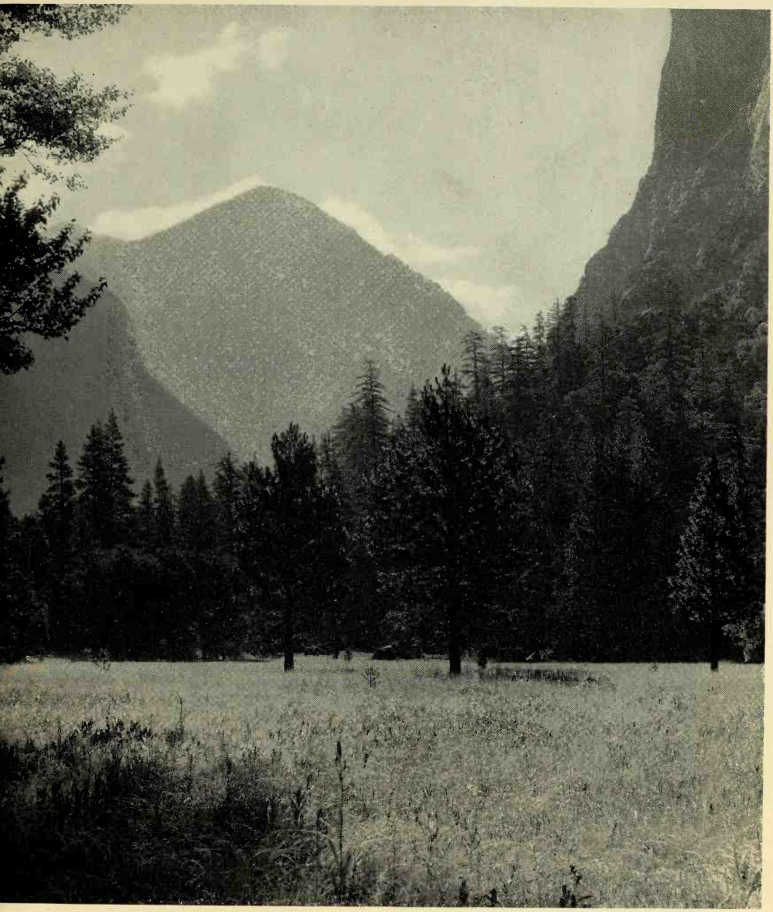


4. Heavy grazing causes unpalatable weeds and forest trees to replace the original tall grasses — Vidette Meadow, Kings Canyon National Park.

5. As overgrazing continues, the grass roots are completely killed, leaving bare, dusty patches which are taken over by weeds, brush, and forest trees — Tent Meadow, Kings Canyon National Park.

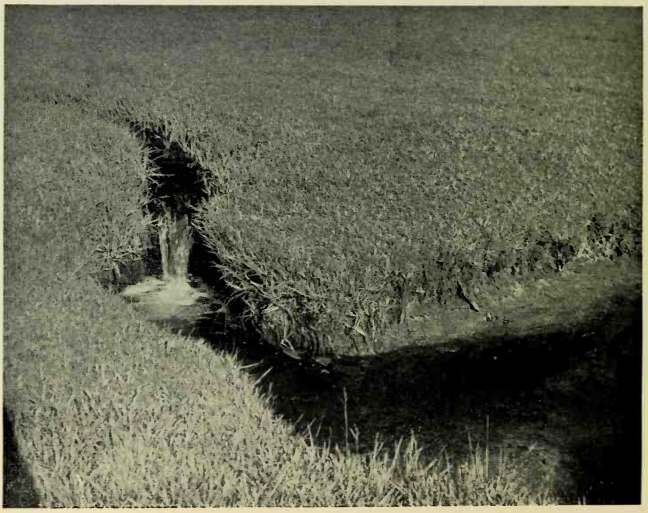
6. This brushy patch of sand is remembered by old-time Sierra Club members as a grass meadow — Junction Meadow, Kings Canyon National Park.

The meadow, jointly owned by the National Park Service and the Sierra Club, by mutual agreement has not been grazed by government or private stock since the establishment of the national park in 1940.



Zumwalt Meadow, Kings Canyon National Park, by Cedric Wright

7. Under natural conditions, erosion of meadows by water is almost negligible because the tough, interlacing grass roots bind the particles of soil securely. However, here the roots have been weakened by grazing and trampling, and the water has begun to cut a channel that will grow deeper — Williams Meadow.



8. As the grass roots die, the channel begins cutting through the soft, glacier-deposited soil. Waterfalls like this look harmless at first but soon grow deeper, and continually work backward upstream until the once-level meadow is scarred by a deep trench — Williams Meadow.

9. The trench grows deeper, the banks cave and fall into the stream, to be washed away. The surrounding grassland begins to dry as the water table sinks, and the grass, already weakened by overgrazing, declines still more rapidly—Williams Meadow.

10. As the stream continues to deepen its channel, the grass dies out and the trampled sand is exposed to wind and water erosion — Williams Meadow.

11. Once started, erosion damage runs in a vicious circle as the grass dies out over constantly widening areas and the stream channel, once just a wet seep on the meadow surface, cuts ever deeper — Boggy Meadow, Kings Canyon National Park.

12. At last the meadow dies. At this late stage, though grazing should be stopped, fifty years of total protection would not bring complete recovery.
Photographs 1 through 12 are by Lowell Sumner, courtesy of the National Park Service, reprinted from the Sierra Club Bulletin, 1947.

tain the current rate of the population expansion. As events turn out, the increasingly hard-pressed beavers are never able to balance their budget of energy and time against their food requirements. The old canal is abandoned because of the bear and the new one is never built.

With the passage of time and the added complications of the lost canal the pinch presses ever harder. Because repairs on dams in the home area no longer can be made promptly the water gradually drops, leaving many beaver lodges high, dry, and unprotected.

Family life is disrupted by these widening cracks in the economic and social structure, and there are many broken homes. The old days of easy and gracious living are gone. All members of the community must work harder and longer. A beaver's working day now brings only half the tangible results it brought in the Golden Age; the beaver's dollar has been devaluated.

By now the virgin forest homeland of the Golden Age has changed beyond all recognition into a cut-over wasteland, crowded with dilapidated houses and devoid of the shade, space, and green vistas that a beaver needs for tranquility and health. Discouraged and discontented, some adventurous souls leave the worn-out community forever, hoping to discover fresher, wilder lands where a pioneering beaver can make a fresh start.

More and more apathetically, the balance of the population struggles against mounting odds. Longer hours of work performed on insufficient food take an increasing toll; deaths from exposure, disease, and deteriorated housing mount. Enemies discover that undernourished workers plodding to distant remnants of the aspen groves lack their former vitality and aggressiveness in self-defense. More and more beavers and their badly needed supplies never get home.

As malnutrition is prolonged there is a decline in the fertility of the community. Only a few small litters of beavers are born, and infant mortality reaches an all-time high. So the decline of the community accelerates as replacements fail to keep pace with attrition. These are nature's harsh methods of cutting an overexpanded population back to size.

From here on the fate of our beavers is uncertain. Many may succumb to a new hazard—stress disease—to be mentioned later. If this does not happen, and if they are lucky enough to have a favorable environment and climate, their decline may stop short of complete enfeeblement. If less favorably situated, the community may wither away like ancient Babylon, Greece, the Roman Empire, Persia, and other civilizations whose vitality faded when their forests, soils, and waters were used up.

In our own Phase II—More Complicated Living Conditions—today's

civilized pressures become ever more complex because we have invented an accelerating industrial technology not possessed by the beavers or by our own earlier civilizations. Industrialization allows us to get away with the largest populations of all time—for a while.

But since these enormous populations are necessarily concentrated in cities, they lose their feel for the land, and forget that its resources are the only thing that keeps their cities going. In this acceleration of tempo and complexity, and in this forgetfulness of the land, the biologist sees mankind facing the possibility of more violent and disastrous ups and downs of population than any recorded in history.

Looking almost anywhere we can read the signs that in our own country, once so richly endowed with natural resources, we are in the late afternoon of our Golden Age. The shadow of biological complications and consequences scarcely touches us yet, but we can see it just ahead.

Already we experience large-scale failure to eliminate one of civilization's waste products—smog. The scramble to move away from it is on as the tide of suburban development covers up farm lands, and spreads, at the national rate of 1,000,000 acres a year (*ibid.*, p. 694), far out even into the desert, from Palmdale to Victorville, from Palm Springs to Twentynine Palms.

But the smog keeps following. Last December while camping in an uninhabited desert region northeast of Barstow my family and I saw a new real-estate development sign saying, "Live here and breathe pure air. No smog." Yet the air that day was milky with smog drifting over the mountains and across the desert from the ever-expanding seat of civilization 80 miles away. Today it is not uncommon to see smog creeping even into that remote retreat from cities—Death Valley.

Once upon a time water was taken for granted like air and sunshine. But [former] Interior Secretary Fred Seaton warned last November that soon "water may become this country's number-one domestic problem."

A lot of seemingly unrelated complications and frustrations begin to fit together when we ponder the basic cause in biological terms: the mounting cost of building or buying a home; the overcrowding of our public-school and highway systems; the decline in the bag-and-creel limits allowed hunters and fishermen; the need to teach boy scouts that they must give up scouting's traditional free use of the ax and no longer make a bed of fresh pine boughs; the increase in traffic lights and parking meters; the multiplication of signs saying "don't."

These restrictions on personal freedom, this overcrowding of public facilities, these higher costs reflecting scarcity, are biological symptoms of population saturation. Seen in that light, the same underlying situa-

tion explains the rising price of coffee and postage stamps, the deterioration of mountain meadows in the national parks, the battles to save wilderness, and the deadly international struggle for the world's "underdeveloped" regions.

Thus as our civilization speeds ever faster down the highroad of destiny we see a green light up ahead changing to orange, and we know that in a moment it will flash red. But we have not yet begun to apply the brakes.

If the ups and downs of animal populations and related lessons of the wilderness can give us a better insight into these pressure problems of human civilization, the wilderness may have made its greatest contribution to human welfare. Clearly, for man as for beavers the time inevitably approaches when the world's food supplies, living space, and natural resources will be insufficient to maintain the current rate of the world's population expansion.

When that time comes even the noblest ideals—of helping other nations, of saving wilderness for posterity—cannot hold back the operation of universal biological laws. Then man will either have to learn to regulate peacefully his own numbers or undergo a devastating and possibly irreversible decline.

Our most immediate hope lies in working to bring about a more widespread awareness of this approaching danger and the urgency of a realistic, civilized solution.

But we still have to consider the previously mentioned third aspect of the pressure cycle:

Phase III: Stress.—Emotional stress is aggravated by the difficult times that we have been describing. Modern medicine is attaching great significance to the stress condition in human beings.

Coincidentally, game biologists are finding that when animal communities multiply until they reduce their habitat to a biological slum, normal feelings of security and tranquility give way to mounting irritability toward companions and neighbors. Bickering and strife greatly increase. This lowers the physical health of the entire community and its ability to adjust to the still-mounting pressures brought on by the overcrowding.

Lowering of vitality through the stress caused by overcrowding seemingly occurs in virtually all mammals so far investigated (Christian, 1950; Christian and Davis, 1955, 1956) and is well demonstrated in such socially tolerant species as rats, mice, muskrats, rabbits, and deer.

In extreme cases, particularly among lemmings, voles (Godfrey, 1955), and snowshoe hares in the north (Christian and Davis, 1955), the deadly effects of stress eventually may exceed the combined toll from

malnutrition, natural enemies, and contagious disease. When this point is reached vast populations die off within a few weeks or months giving rise to the well-known cycles of alternating abundance and scarcity of certain animals of the far north.

Post-mortem examinations of such animals reveal stress damage to the internal organs including inflammation or ulceration of the digestive tract, and permanent metabolic derangements comparable to those which we shall describe in considering the effects of stress on man.

In our own daily experience can we doubt that the increased congestion, job competition, noise, tempo, and general complication of modern life sometimes disturb our feelings of tranquility and security, our digestion, and the pleasure of having close neighbors? The general concept of stress as unwholesome nervous strain or emotional tension has been clarified and sharpened by the latest medical research which indicates that for human beings as for animals stress is a more deep-seated, prevalent, and damaging condition than had been realized.

Dr. Hans Selye (1956) and others have shown than in man and other vertebrate animals physical or emotional stress causes the body's system of chemical governors—the endocrine glands—to produce powerful chemical substances (hormones) in the proper amounts to adapt the individual to withstand that particular stress. But their research further shows that if the stress is too long continued the chemical equilibrium eventually fails and the body becomes flooded with an excess of hormones.

When this point is reached basic metabolism is upset, the abnormally concentrated hormones attack the body itself and cause severe structural damage to many vital organs. Significantly, the most acute stresses and the ones producing the most profound and long-lasting damage are the *emotional* stresses.

We have long noted the prevalence of high blood pressure, heart and kidney disease, and ulcers of the digestive tract among executives and other conspicuous victims of the hectic life. Now it is demonstrated that these breakdowns result from the hormones concentrated by prolonged emotional stress. It is further revealed that other types of human illness even when not actually caused by emotional stress are made worse by it because the hormonal disturbance caused by the emotional upset prevents the body from building up its normal resistance to the disease.

This relationship explains why so many maladies became rampant during wars and famines (Selye, 1956, p. 204). It also underlies the startling pronouncement of medical authorities that chronic emotional stress now is a major cause of over 50 per cent of all illness (Schindler, 1954, p. 4), and that "an ever-increasing proportion of the human popu-

lation dies from the so-called wear-and-tear diseases, or degenerative diseases, which are primarily due to stress" (Selye, 1956, p. 275).

As the pressures of civilization continue to mount there is increasing import in Dr. Selye's discovery that each of us appears to be born into the world with an inherited and unchangeable total reserve of adaptability to stress. Each exposure to stress, despite the recovery brought by rest, leaves a permanent scar within us and uses up a portion of our total reserve that can never be replaced. So our life reserve of adaptability resembles a nonrenewable bank account: we can needlessly accelerate the rate of spending and throw away the precious years through excessive frustration, worry, irritation, tension; or we can spend life's capital more slowly, wisely, and happily by learning how to avoid or mitigate many of life's stresses—and this brings us back once more to the basic need for wilderness.

The therapeutic value of wilderness and natural areas in relieving or preventing stress, and the philosophic value, have been recognized by some people for many years. It was expressed by Aldo Leopold with unforgettable depth and clarity in his *Sand County Almanac* (1949), and *Round River* (1953); and by John C. Merriam, who helped so many to understand the significance, beauty, and healing power of natural things.

Of course wilderness is not the only antidote for stress, and this is fortunate because few today can spend much of their lives in the wilderness. Doctors now emphasize that relaxation on vacation trips must be supplemented by learning better daily habits of thinking, feeling, and avoiding unnecessary stress.

But though better attitudes and methods of solving life's problems can mitigate the stress of our industrial age, they cannot abolish it. A nationally prominent physician recognizes this as he records (Schindler, 1954, p. 30) that after leaving his own stress-induced pains at the office while enjoying a tranquil vacation, he finds them waiting like a flock of gremlins when he returns. So it becomes clear that as the pressures of civilization continue to increase, the therapeutic benefits of wilderness and natural areas, the philosophy, understanding, and serenity derived from contact with them, will be more and more needed by everyone.

If this need is widely enough recognized—and provided nations learn to regulate their populations in peaceful and humane ways—we can hope to keep and enjoy wilderness for tranquility and healing, always. Perhaps the tremendous awakening of conservation forces in the past year marks the beginning of this wider recognition, as illustrated by the battle over Dinosaur, by current moves for a review of scenic resources for the future and the establishment of a National Wilderness System, and by the sense of urgency in conservation matters.

National planning authorities say that we have possibly 50 years of grace in which to solve our land-use problems before they deteriorate beyond control. During this period of grace machines will give us more and more leisure time which cannot be satisfactorily spent entirely on gadgets and TV. More and more people will turn to their outdoor environment for recreation. The need of a better and more generally applied land ethic, of which our Sierra Club principles are a forerunner, will be ever more sharply realized. (Thomas, 1956, pp. 904–05, 1004–08). Out of their increased leisure and their desire to preserve a sane and healthful way of life, more and more people will organize on behalf of wilderness. Therein lies our greatest challenge and our greatest hope.

LITERATURE CITED

Brown, Harrison.
1954. *The Challenge of Man's Future.* New York: Viking Press, xii + 290 pp.
Brown, Hugh H.
1956. "Population of 58 Counties," *The Tax Digest* (California Taxpayers' Association), Vol. 34, pp. 301–2, 314–15.
Christian, John J.
1950. "The Adreno-Pituitary System and Population Cycles in Mammals," Journal of Mammalogy, Vol. 31, pp. 247–259.
Christian, John J. and David E. Davis.
1955. "Reduction of Adrenal Weight in Rodents by Reducing Population Size." Transcript of the Twentieth North American Wildlife Conference, pp. 177–188.
1956. "The Relationship Between Adrenal Weight and Population Status of Urban Norway Rats." Journal of Mammalogy, Vol. 37, pp. 475–486.
Godfrey, Gillian K.
1955. "Observations on the Nature of the Decline in Numbers of Two *Microtus* Populations." Journal of Mammalogy, Vol. 36, pp. 209–214.
Leopold, Aldo.
1949. *A Sand County Almanac.* Oxford University, xiii + 226 pp.
1953. *Round River.* Oxford University, xiii + 173 pp.
Selye, Hans.
1956. *The Stress of Life.* New York: McGraw-Hill, xvi + 324 pp.
Schindler, John A.
1954. *How to Live 365 Days a Year.* Englewood Cliffs, N.J.: Prentice-Hall, xxviii + 222 pp.
Thomas, William L., Jr. (ed.).
1956. *Man's Role in Changing the Face of the Earth.* An International Symposium under the co-chairmanship of Carl O. Sauer, Marston Bates, Lewis Mumford. University of Chicago Press, xxxviii + 1193 pp.

DE FACTO WILDERNESS: WHAT IS ITS PLACE?

David R. Brower

In the last few years I have flown quite a bit. Rather, I have been flown by experienced airline pilots. I have enjoyed it, the way Shelley Berman does in his famous record. Once I safely have the ship off the ground and before I have to start worrying about where we are going to land and whether the pilot is really concentrating on his work between these emergencies—and when it isn't too turbulent—I enjoy looking at the countryside. One of my pet games is looking for fairly big pieces of handsome terrain that have no roads or developments in them. Big sweeps of country in the Rockies, for example, where either thanks to the spruce budworm or to wildfire, we have those slopes that are the glory of the Rockies, especially in mountain springtime and autumn. I'm referring to the wonderful diversity we have of aspen slopes, mixed with evergreen instead of being an unmitigated, monotonous spruce desert. This diversity is the result of land management by the Creator. The very best management.

There are still a few unspoiled, unroaded places. I have seen them become fewer. Some of them are duly designated as Forest Service Primitive, Wild, or Wilderness Areas. Some are not so designated but are given even greater protection by being in national parks. Others aren't legally wilderness areas at all. They're just plain wild. They are de facto wilderness. In my favorite definition, they are simply "wilderness areas which have been set aside by God but which have not yet been created by the Forest Service."

Up until now, we have been hearing a lot about the created areas—those which have been formally designated. For the past six years we

have been fighting for a wilderness bill. We have held ten biennial wilderness conferences, both in the Northwest and in California, with one of our purposes being to shift the protective machinery of Government off dead center—to charge it with the responsibilities that a wilderness bill would define. Although we have also helped protect our national parks, have argued the public's case in primitive-area reclassifications, and have attended the myriad details our bulletins plead hoarsely for you to write letters about, still down deep the wilderness bill has been our basic concern. Its progress has measured our progress.

Vast energy has been focused on this legislation for the past six years. Printed testimony before congressional committees runs to something over 2500 pages. The issues have been defined and redefined; dozens of articles have been published in national magazines; and nearly every major newspaper has carried editorials—several, in the best papers—urging the bill's passage.

These wilderness conferences have deepened our perceptions of the workings of the natural world about us, of our place in that world, and our competence to belong in it. We have also learned a great deal more about the workings of our Government. No one can have watched the evolution of the wilderness bill, beginning with its unveiling in Portland in 1956, without acquiring an intimate knowledge of the workings of government, even the occasional non-workings. This knowledge is a gain even if the bill should stall—and thereby demonstrate that those people were right who urged moving swiftly for specific national parks instead of general forest wilderness—all so susceptible, it seems, to bulldozer and chain saw.

But the wilderness bill should pass, must pass, and—with your insistence—will pass. The key is your insistence; not just one letter, last year, but the best consecutive letters, now, that you can get in the mail.

When your educated insistence has made the wilderness bill into law, will our work be finished? I would like to think so, but our work is just beginning; the bill will simply forge tools for the real job ahead —passing some two per cent of the Nation's land area, unspoiled, to our children. Part of our job will be to insure that the intent of the bill is upheld and strengthened if its reasonable compromises are subverted by unreasonable exploiters.

Where Was the De Facto Wilderness?

We have an important responsibility that is closely allied to the title of this conference: "The De Facto Wilderness: Going, Going . . ." The best map of where it's going, I believe, begins with the mapping of where it is now and where it has come from.

Let me turn back to a time when a conference like this was almost inconceivable. One of the first explorers of the New World was an exuberant soul named Pierre Esprit Radisson. Describing a once-exuberant environment, the great valley of the Mississippi, Radisson writes: "I never saw a more incomparable country . . . Whatever a man could desire was to be had in great plenty. . . . Europeans fight for a rock in the sea against one another, or for a sterile land and horrid country. . . . Contrarywise those [Mississippi] kingdoms are so delicious and under so temperate a climate, plentiful of all things, the earth bringing forth its fruit twice a year, the people live long and lusty and wise in their way. . . ."

The people Radisson meant were, of course, the aborigines, the savages, the Indians who had such a profound adjustment to their natural environment that 20,000 years of habitation had left it as stable, as healthy, wealthy and lovely as Radisson celebrated it.

We are closing the book on our heritage, a fabulous volume written across the land, the American wilderness.

The question today is: Will we as a nation recognize our debt of gratitude to that heritage—not just the material but the spiritual legacy conferred by the continent we live on and love?

In the area now occupied by the continental United States, there were, in 1654, two billion acres of wilderness. It was as vast, as abundant, and as economically worthless as the sea.

Two interdependent phenomena have taken place in the elapsed 300 years. We started to put a dollar value on the wilderness and it began to get scarce. As a wilderness, Manhattan Island sold for a handful of trinkets and 150 years later, the Louisiana Territory was sold by France for 15 million. That's not much for 530 million acres of wilderness. But the price was going up. And the wilderness was going, going. . . .

Lewis and Clark had not yet descended the Columbia, when Clark would exclaim suddenly, "Ocean in view, Oh the Joy!" and where, as Francis Parkman wrote, "The wilderness of the woods met the wilderness of waves."

It was only a little more than a hundred fabulous years later that anyone stopped to wonder how much of that wilderness of woods remained. We had shown ourselves to be the fastest disrupters of environment in history.

How Fast Are We Driving Through Wilderness?

Some scouts, way out in front of us, saw the brink ahead and the need for a sharp change in direction and speed. They put up some signs, like the National Park Act, which said, "Go Slow, Sharp Turn." But we have

hardly diminished the speed with which we rush through our inheritance.

As recently as 1926, L. F. Kneipp, Assistant Chief of the U.S. Forest Service, prepared an inventory of wilderness in the national forests. His definition of wilderness was generous by today's standards: an area greater than 300 square miles without roads. He found 74 separate tracts with a total square area of 55 million acres. In subsequent years, the Forest Service classified some of this land in primitive areas and later in wilderness and wild areas. A small portion of the acreage, such as the Olympic Mountains of Washington, was transferred to the National Park Service. But by far the largest part was logged, mined, penetrated by roads, grazed, inundated by reservoirs, and so forth. In 1961, a comparable study by the Wildland Research Center of the University of California found the number of areas satisfying Kneipp's definition reduced from 74 to 19, the total acreage reduced from 55 to 17 million. And the size of individual areas was reduced also. The largest unit in Mr. Kneipp's inventory contained 7 million acres. The largest unit in the 1961 study contained 1.8 million.

That's hardly a generation's time. In it we spared essentially all the big national park wilderness, but we drove over or otherwise dismembered 38 million acres of a national forest wilderness. Our speed was slightly in excess of a million acres cut up per year. And we aren't slowing down for the turn. We are accelerating.

So in the story of our 300 years of conquest, most of the action is taking place in the last chapter, and we are still clear-cutting a swath on the last page.

Let me read a few paragraphs from that last page, just to suggest what has happened to the American dream, to Radisson's promise. The following passage is through the eyes of Ivan T. Sanderson, and it is taken from the foreword to his new, very beautiful book, *The Continent We Live On*. It begins with his journeys over the continent, gathering material for the book—all over the continent. You name it, he saw it; east, gulf, coast, west, Alaska.

"It was our opinion by the end of the trip that the United States was indeed now essentially an urban and suburban nation . . . with but one noticeable break on the Atlantic coast and one on the gulf, there is virtually a continuous built-up strip. . . . As for inland sites, the Illinois-Ohio industrial area and the Allentown-Easton area in Pennsylvania are the worst, but the enormous spread of the cities of Texas is almost beyond belief.

"However few actual farmers there may be, agriculture has engulfed much of the country, and a great part of it, classed as range, is today a sort of monstrous wire entanglement. Deserts there are and of vast ex-

tent; and mountain ranges that look untouched; but both, as often as not, prove to be dotted with oil wells, mines, and hamlets, while enormous stretches are cropped for timber. Roads also have now usurped an appreciable area of the land surface. But the worst feature of all . . . is the litter. . . . There is, in fact, but one haven of hope in this country, and that is the magnificent system of national parks and sanctuaries. By the grace of a few farsighted persons, . . . many of the finest, most significant, and most typical areas of this country have been saved (though only just in time) by the creation of these parks. There are still many more areas that should be enclosed before it is too late. Unless something drastic is done, and soon, the rest of this country will eventually become one great junk pile."

De Facto Destiny

Where is the de facto wilderness going, going? The question seems almost academic, like asking where are the dodo and passenger pigeon and all the other 20,000 or so extinct wild things going, going? It is all but gone.

Where does it go for example when the Forest Service decides that Waldo Lake should join a newly named class and become a landscape management area? From what I have read in the Forest Service release about this landscape management area idea, it is just warmed-over Deadman Summit, where some national forest just southeast of Yosemite contained one of the most beautiful stands of virgin Jeffrey pine you ever saw, open, parklike, easily accessible to millions of vacationists. There, too, recreation was judged to be predominant. But the logs came out just the same. Not as a timber sale, of course. Just as a result of a little management to make it a "thrifty, healthy forest, esthetically pleasing," "opening up for the greater number of roadside recreationists."

The sad thing is that these sawlog semantics keep fooling people. They won't fool those who heard the same pretty words at Deadman Summit or Kern Plateau—they saw the logs go out in the same old way, saw the watershed torn up, saw the recreation potential blighted and the fine promises forgotten. They got a new cocktail for their trouble—wilderness on the rocks. Trees, they learned, are for sawmills—as soon as merchantable. Wilderness lovers should go above timberline, or settle for the fringe benefits of old-growth trees left to line the roads and streams—so long as the winds or the sanitation-salvagers will let the fringe stand there.

I know of no outdoor organization yet ready to schedule a summer outing into one of these "thrifty, healthy, esthetically pleasing forests" so long as the organization can choose anything else. The newly an-

nounced High Mountain management policy seems determined to eliminate the chance to choose.

Ask the Park Service, too, where the de facto wilderness is going. There is no adequate public voice, yet, in what happens to national park wilderness. Right in the middle of one of the greatest of all wildernesses in the system—Katmai National Monument—a road suddenly appears in the master plan. The public wasn't asked. The public was told. This would make the wilderness more accessible, and so on, the case went—in a recitation of most of the usual arguments for getting rid of wilderness.

The place of the de facto wilderness in conservation today is implied in what the Chief Forester, Edward Cliff, stated in an interview recently. He said that the Pacific Northwest has become a problem region for the U.S. Forest Service. "There is no place where land management decisions come harder. . . . There we have areas with extremely high commercial values for logging mixed up with areas of high scenic value."

How Hard the Decisions?

Many of the hard decisions for the Forest Service in the Pacific Northwest involve the de facto wilderness. They are decisions that do not have to be made in a hurry and they should not be. They are hard decisions in proportion to the effort to hurry them. They are decisions that no man again in America will ever have the chance to unmake—they are as irrevocable as divine law; but I fear that they are being made with something less than divine judgment. Most of all, however, the decisions are hard not because areas of high commercial timber value are mixed up with areas of high scenic value, but because the remnant of unspoiled forest is the basic scenic setting in many of these places. The values surely are not mixed up in any confused sense; they comprise some of the grandest natural architecture on earth. Within this complex is a potential national park that would surpass any which now exists. This could really be something to celebrate in century 21 if such a great new park were recognized and established in the Northern Cascades—a park with an unexcelled wilderness heartland, to make here a golden triangle of national parks that could keep the Puget Sound metropolis scenically pre-eminent for all our time. Wouldn't it be great to have such a golden triangle on hand for the next World Conference on National Parks?

To make a superb park of a forest may be a hard agency decision. I am not sure the public would have trouble deciding—if the public were given a fair chance.

Wilderness is for people—all the people who are willing to put one foot after another and go where the trails go, and only the trails. For all our fixation on wheels, we still know how to walk, and as we value our

lives and our fullness of living, we had better not forget how to walk and to keep alive the vigor that is life.

Wilderness is for people, a few at a time, for ages without end. We know we are short of it already down in the smoggiest State. There is no more where it came from. Our generation has squandered it without knowing what damage we have done to all the future.

The de facto wilderness—the undedicated fragment that remains—is the last place we have to act for what we know in our hearts future Americans will need as is. It would cost the future too much, and add too little to our conveniences, for us to decide to spend it all now.

In Conclusion

De facto wilderness is wilderness in fact—a big, wild, unmechanized, unroaded natural place with no formal border around it. It's just there, wild and beautiful, and important or unimportant as wilderness to the Nation's future. We don't know. We just own it.

A great deal of it is already on the way out. Like the 186,000 acres of streamside sculpture and scenic wonder that will disappear forever beneath the fluctuating waters soon to rise behind Glen Canyon Dam, endangering Rainbow Bridge and destroying its setting in violation of the law, unless we act.

Much more de facto wilderness is on the way out, as the few figures I have given indicate. Just about every fragment of undedicated national forest wilderness will go unless you stop its loss. It will meet its destroyer in the dramatic program to built thousands of new miles of timber-access roads in the next few years, and obliterating thousands of miles of de facto wilderness trails in the process. Some of the most beautiful Northwest back country is condemned.

The de facto wilderness is the wilderness that waits in death row. It has been sentenced by the people who don't like it, by people who worship an unending material growth, who think that something bigger is always something better, who would wipe out the last trace of some natural wonder if that would let a segment of the economy grow the same old way for a few years more.

The de facto wilderness is being sentenced by its enemies in the administering public agency. Its friends have not been heard and have been refused a hearing. Once or twice the sentencing administrator has been asked whether he thought he had been right in passing sentence. He has said, yes, he was right. So the sentence stands—and there has been nothing like what we have come to expect, in a democracy, as a fair trial.

The friends of wilderness do not know whether they could prevail on behalf of their friend. But they do know there should be a day in court.

There isn't. It has been refused. And that is wrong. We in our time are losing a great deal because we let this wrong go on. The future will lose enormously unless we protect the future's rights today—one of those rights being the right to know wilderness.

A friend of mine said the other day, a man lives but once and he ought to be counted at least once. It looks as if now is the time to be counted for de facto wilderness—our last chance. This is our children's last chance too.

WILDERNESS AND THE SELF-INTEREST OF MAN

Bruce M. Kilgore

It seems to me that if a democracy is to work at all, we must assume that an effective citizen is an informed citizen willing to act. He may need to act before all the data are in, if—in his own good judgment—there will be nothing to act about if he waits until all the data are in and all the comprehensive studies are completed and evaluated and there is coördination at all levels of government.

It is up to us—as conservationists—to inform the citizen. We have been discussing ways of doing it for two days. Our toughest job is to overcome the insulation citizens have to build around themselves if they are to remain sane in an adman's world of perpetual bombardment. There is so much information flowing, and crises are so constant, that specialists can't even keep up with specialists. A chemist would have a hard time even reading the index to chemical abstracts—about ten pages of fine print per day! But we must try, and we must also keep ourselves informed, and not succumb too often to the cliché that we spend too much time talking to ourselves. We don't spend enough because there isn't enough time.

What will motivate a citizen to act? In the last analysis, man acts to preserve himself. He must and he will. It is a built-in instinct. We need to capitalize upon it and we can. We can show that it is in man's self-interest to protect wilderness. We had better show it, because it relates to our preserving ourselves.

In the first place, we can and we must show that wilderness can only survive in a society designed for peaceful stability. It requires getting

rid of a pet delusion, and a dangerous one. We have developed the habit of exhorting ourselves to produce more to aid the "vigorous, growing economy." Yet continuation of such growing production is not possible on an earth of fixed size—and continuing attempts to produce it are the basic threat not only to wilderness, but also to peace.

The U.N. is now studying the question, "Can the economy withstand peace?" The related question—which we have indirectly been asking is: Can limited resources withstand a constantly increasing expenditure? The answers to these two questions are obvious—and carefully avoided by almost everyone. It is in no one's self-interest to avoid them much longer.

In a second broad area, we must lend all the support we can muster to a program which will permit our biologists and ecologists—our natural scientists—to continue their study of life in all its aspects. Dr. Edward H. Graham of the Soil Conservation Service nearly a year ago suggested the establishment of a center to further the advanced study of environment—more specifically, of eco-systems. Such a center would seek out the best minds in the field of biology and give them a chance to get on record. It would provide the opportunity to find or to develop some Einsteins of biology.

They have an important gap to fill. For there is tragically little known about the speed with which technology is wiping out the world's organic wealth—and the variety of living organisms built up through the aeons since life began. In all likelihood, these interrelated living plants and animals are essential to the continuation of life as we know it. Yet we continue to tear up the last remnants of habitat, on earth and even beneath the sea, much as a ne'er-do-well spends his inheritance.

One practical example: At our wilderness conference last spring, Professor Robert Stebbins brought to his panel table a small shrub, a plant he had known as a boy in the Mojave Desert. No one realized it amounted to anything, and had there been a proposal to run a freeway through the last remaining habitat of this plant, no one would have thought much about it. But now it is high on the Department of Agriculture research program—for it has been discovered that the seed has a liquid wax with a very high melting point and that the wax may be useful in hardening oils used in heavy machinery. It has value as a forage plant, and the wax can be used to make smokeless candles.

But where are we to keep this type of plant and all the other as yet undiscovered species—where are we going to allow the organic diversity the future may need for its very existence? As more and more organisms are displaced and as population pressures eliminate wild species, we are simplifying our genetic pool. It may be very important to have these

wild organisms around; we don't know when we may need some of their traits. We don't even know that they are not already a vital but undiscovered link in a chain we now depend on.

Another example—a more personal one if you'll permit me. Some of you may have read about the discovery in abalone of a certain substance in its blood which appears to be terrifically effective against staphylococcus infections—infections which because of immunities built up against antibiotics cannot be treated in any other way.

While this would have been of only passing and general ecological interest to most people, it was of particular significance to me. Just three years ago, my older son, then four years old, had to undergo a very delicate operation for an unusual kind of ear infection. The operation was successful, but within a few weeks there was a flare-up of such a staphylococcus infection. The doctor tried every antibiotic available. Finally, two months later, he had to operate again—this time having to remove essentially all the hearing apparatus in the left ear. This is all deeply impressive to me as evidence of the intangible values of the little known reservoir of varied forms of life-force we have in the wilderness—both on the land and just offshore. Had someone isolated and learned to use that abalone substance just four years ago, instead of last week, my son might not have lost his hearing.

Other examples are legion of man's continually needing to fall back on nature for solutions to problems his technology creates. Man has a unique talent for getting out on a limb and then trying to saw it off behind him.

What worth wilderness? How much wilderness is needed? Must every wilderness be a "working wilderness" in an economic sense—in the sense implied by the cover of the current *American Forests* magazine?

Can the American Public afford to be satisfied with occasional "wilderness on the rocks" plus a few so-called landscape management areas where "timber will be managed to produce a thrifty, healthy forest cover that is esthetically pleasing?" Will such a philosophy save the goat-nut plants, the abalones, the countless other as yet undiscovered keys to life which remain in the natural plant and animal associations found in wilderness and perhaps nowhere else?

What then can the citizen do to further the philosophy of peaceful stability and to help provide a climate in which the sound ecological thinking of our biologists can be applied in so many critical areas of public thought and decision? The members of this panel have already covered the usual list of ways of reaching a broader audience with information which will promote a deeper understanding of what we mean by wilderness and why it's important. So I'll merely try to recap briefly.

We have to tell our story, as widely as we can, and we must make it the vital, living, dynamic story it is.

With all the accomplishments of man in the space age, with manned spacecraft circling the earth and all our accomplishments in subduing the earth to our needs, we need to retain full respect for the life force, the genetic reservoir that made each of us possible, and all our parts—for the force that brought about all we live with on earth. We must keep that respect—and we must communicate the urgency of keeping it. With that reverence for life will come a respect for wilderness and assurance that enough of it will be preserved to prevent the genetic reservoir from being silted in and destroyed.

As I said at the outset, in the last analysis man acts to preserve himself. He acts in his own self-interest. It's our job, therefore, to show our friends, our leaders of thought and of action that all mankind is involved in these islands of wilderness. Man is tinkering with his environment; and the absolute requirement of intelligent tinkering, as Aldo Leopold pointed out, is to save all the parts. Wilderness is the place for their safekeeping—the essential place—the necessity.

Our concern for wilderness is not just a quixotic concern. More and more we're learning the truth of what Thoreau said more than a century ago: "In wildness is the preservation of the world."

WILDERNESS AND MODERN MAN

John Collier

In 1936, now twenty-six years ago, Robert Marshall intervened with Secretary Harold L. Ickes to prevent the building of a paved highway from Clingman's Dome, in the Great Smokies, on southwestward along ridges and mountain-balds to the Tennessee River. Ickes concurred with Marshall, and the chief of the National Parks Service ruefully moaned. "Then my invalid mother cannot visit Thunderhead Bald."

Is Wilderness un-democratic? There are opponents of Wilderness who so insist.

True it is that Wilderness cannot be penetrated or resided in by each individual of our hundred and eighty million Americans. Neither can the Gulf Stream's or Humboldt Current's wildernesses beneath the ocean's surface, or the high Himalayas or the central Sahara, or the immediate inward vision of William Blake or Dante or Aeschylus. Not everyone in his own urban person can fall "with his weight of cares upon the world's great altar-stairs which slope through darkness up to God," the altar-stairs of Wilderness and of the Spirit in its heights.

But what is brought back *to everyone* from Wilderness, and from the Spirit's aloneness, becomes the possession of the whole human race. Captain Robert F. Scott and Doctor Edward A. Wilson and their three companions, perishing while the Antarctic night and vast storms came down, yet leaving a written record which is a consolation and a challenge to all mankind forever: William Wordsworth, in his childhood and young manhood enwrapped in the mountains, alone, and producing "Tintern Abbey" and "The Prelude," and thus deepening the consciousness of the English-speaking race: W. H. Hudson, alone, under the down-raining song of the invisible skylarks, and alone on the desert of Patagonia, and out of those experiences (which had to be solitary, as Hudson insisted),

opening a gate into mystery for the whole reading world: such, and countless other departures, nearly always solitary, into the kindred wilderness of Nature and the Soul (solitary departures which "primitive" men knew were the pre-conditions of maturity, and which The Christ, The Buddha and Zarathustra knew in the same way)—such departures, such lonely entries to Wilderness, and communications from out of Wilderness, actually have formed the soul of mankind.

Yet I exaggerate, here, what the democracy of Wilderness really does require. Not a few, but hundreds of thousands of children, adolescents, and grown-up seekers of the Wild, *can* penetrate the Wilderness, *can* have their life-relationship deepened, without destroying even an atom of Wilderness. It is solely a matter of internalized discipline, and of humility in presence of the silent utterances of Wilderness. We go into Wilderness, we come back to the human multitude, and from Wilderness —the ecological climax, and man's oneness with the climax—we bring back a democracy not of surface manners and prudent abstentions, but of life itself in the world's eternity.

At an early date within the New Deal, the National Resources Planning Board, created by President Roosevelt to report on ways of saving our vanishing resources, found that in the United States there remained only eighty-two forest roadless areas and twenty-nine non-forest roadless areas. On October 25, 1937, I incorporated the Resources Board's findings into an administrative order. Robert Marshall, until May, 1937, the Indian Bureau's chief forester, had proposed this administrative order; he had personally examined, on the ground, each of the sixteen Indian areas which, by the order, were decreed to remain roadless until such time as the order might be modified. Secretary Ickes approved my order. I quote from the order, whose full text may be found in *The Living Wilderness* of December, 1937, and again in *The Living Wilderness* of July, 1940. First, I slightly expand upon the explanation of why the Order was promulgated.

"The Indian folk-life has not shredded away, as have the other folk cultures of our country, in the face of a commercialism ruthless alike toward man and the wild creatures and toward the land, the earth. Yet increasingly, the Indian is encountering the competition and disturbances of the white race and the acquisitive society. The roadless areas are to save for the Indian some places that are all his own, but also to save for the Nation some fragments of commercially un-exploited wilderness." (We knew the passion with which a Tewan Pueblo and Taos Pueblo guarded their sacred wildernesses. We believed that these were representative Indians, as truly they were.)

Quoting now textually the operative portion of the order:

I am establishing the policy that existing areas without roads or settlements on Indian reservations should be preserved in such a condition, unless the requirements of fire protection, commercial use for the Indians' benefit, or actual needs of the Indians, clearly demand otherwise. [Note the above language; it was ignored by the Indian administration which, twenty years later, sweepingly abolished all except two of the sixteen roadless areas.]

Under this policy I hereby order that the following shall be established as roadless areas on Indian reservations:

Name of Area	*Reservation*	*Approximate Acreage*
Rainbow Bridge	Navajo	1,590,000
Black Mesa	Navajo	820,000
Grand Canyon	Hualapi	530,000
Painted Desert	Navajo	525,000
Black River	San Carlos–Ft. Apache	325,000
Wind River Mountains	Shoshone	220,000
Columbia-San Poil Divide	Colville	155,000
Mt. Thomas	Ft. Apache	130,000
Mission Range	Flathead	125,000
Mesa Verde	Consolidated Ute	115,000
Coat Rocks	Yakima	105,000
Mt. Jefferson	Warm Springs	105,000

There are certain areas, not large enough to be designated by the term roadless, from which it is nevertheless desirable to exclude provision for motorized transportation. Such tracts the National Resources Board has designated as *wild areas*. I hereby order that the following shall be established as wild areas on Indian Reservations:

Name of Area	*Reservation*	*Approximate Acreage*
Mt. Adams	Yakima	48,000
Fort Charlotte	Grand Portage	19,000
Grand Portage	Grand Portage	11,000
Cape Flattery	Makah	6,000

John Collier, Commissioner
Approved: Harold L. Ickes, Secretary of the Interior

The roadless areas were *administratively* created. Their boundaries could be changed as ensuing events might indicate. They could be abol-

ished altogether, if this or that tribe, after genuine consideration, might want them abolished. Across some twenty years, no tribe did want them abolished. Then, after the middle 1950's, in a sudden rush a number of the tribal councils did ask that the roadless areas be abolished. The then administration, without independent inquiry and without argument, at once abolished all except a negligible two of the roadless areas. The tribes were assumed to have given consideration to one of the General Forest Regulations for Indian lands, reading:

"The preservation of the forest in its natural state wherever it is considered, and the authorized Indian representatives agree, that the recreational or esthetic value of the forest to the Indians exceeds its value for the production of forest products."

Value to the Indians—not also to the nation. But how were the tribes to measure the dollars-and-cents values to themselves or the nation of roadless areas, as balanced against future commercial exploitation? The quoted regulation asks the counting of angels balanced on a needle's point. There is no evidence that any Tribal Council tried to count the angels on the needle's point. And their rush of action, not toward changes of roadless boundaries but toward the summary destruction of the roadless areas, suggests the kinds of influences which are fighting now against the Wilderness Preservation bill—influences presumptively conveyed through instructed field agents of the Indian Bureau of the 1950's.

A communication by the then Indian Commissioner, Glenn Emmons, and a statement to the Sierra Club by one of his district representatives, justified the Indian Bureau's action thus: The roadless areas order was violative of the Indian Reorganization Act of 1934. The Indian Reorganization Act was procured by Secretary Harold L. Ickes and President Roosevelt. The history, substance, and spirit of that Act are told elsewhere in this book. The Ickes administration lived by the Act's spirit and its technical requirements. Even in the prolonged, often agonizing struggle to help save the Indian lands from devastating soil erosion—successful in the long run—no tribe was ever coerced. The roadless order was violative neither of the letter nor the spirit of the Indian Reorganization Act; and the Emmons' administration's invoking of that Act to justify its hurried destruction of the roadless areas was ignorant if not insincere. This subject belongs to the present and future, not only to the past. Hence, I quote in full a letter of mine to George Marshall, dated July 7, 1962. George Marshall, through the Wilderness Society and the Sierra Club and otherwise, carries onward the purposes of Robert Marshall.

Ranchos de Taos, New Mexico—July 7, 1962

Dear George Marshall:

I read your July 3 letter, with its several enclosures, when it came yesterday; thought about the subject all day; have re-read all the documents today. All this, with a good deal of distress.

I first answer your question: Were the tribes consulted before the roadless order was submitted to Secretary Ickes, or afterward? I note from one of your enclosures that Dan Murphy suggested consulting them. So far as my memory goes, the tribes were not consulted. I give two probable reasons, one of law and one of circumstances.

Law. The authority of the Interior Secretary to direct that roads be not built was clear. Leaving aside the words "wilderness" and "wild," the Secretary's order was nothing except a directive that roads be not built within the described areas. On a showing of fact, the order could be modified at any time. On an expression of tribal wishes, the order could have been modified at any time. Across about twenty years, there was no expression of tribal wishes so far as I know. (And I believe the record would show this.) Evidently the Departmental Solicitor had no doubt of the Secretary's authority in this particular; evidently the Solicitor's office (which was rigorously insistent in all cases that the Indian Reorganization Act should be lived up to in letter and spirit) found no conflict between the proposed roadless order and the Indian Reoragnization Act. (A hypothetical exception to the immediately above: had a tribe proposed *with its own funds* to build a road, then the Indian Reorganization Act would have been relevant and probably controlling. No such case arose, I believe; the road funds were public gratuity funds, and in the absence of specific Congressional directive the Secretary's authority was *plenary*). So much for the law.

Circumstances. The order which Bob Marshall had formulated was meant, in part, as a commencement of the Wilderness policy broadly conceived. This was understood by Bill Zimmerman and by me. Therefore we ought to have done what Dan Murphy suggested; we ought to have taken the subject to each of the several tribes. The consent of a tribal council would not have been binding on a successor council; but the consent would have had a persuasive value; and the educational effort, by the Indian Bureau (education in the whole Wilderness concept and purpose) would have been all to the good. Why didn't we do this work? A thing not technically obligatory would have been philosophically, etc., of value.

My answer is: In 1936, '37 and afterward, we literally were drowned, hemmed-in, sometimes crushed, by hundreds of jobs which were technically necessary and not merely desirable. More than 200 Indian reservations, plus Alaska, plus the businesses of tribal council and corporations, but above all, plus Congress, made every day, every week, a heavy chore and often (with Congress) a battleground. Bob Marshall had transferred to the Forest Service; Dan Murphy had the whole of the Indian C.C.C. on his hands; the Soil Conservation Service was being lifted by Roosevelt out from Interior into Agriculture; and we were acting under a directive from Roosevelt to assemble and justify (to Congress) a request for large, very large, additions to the land-acquisition and credit appropriations. (An example: in those years, '33 through '37, I made seventeen journeys from Washington to the Navajo on soil conservation matters, meeting with the Tribal Council and mass gatherings of the Navajos. We were determined that on the Navajo as on the other reservations, the sacrifices and new efforts for soil conservation should be done by the tribes without coercion, as decisions and actions of their own. They were done that way.) Inasmuch as there was no technical necessity of "selling" the roadless order to the tribes, but only an educational desideratum; and inasmuch as the roadless order could be modified whenever or if ever the facts so indicated: Well, in brief, we did not do what Dan Murphy suggested. In the hind-

sight of the whole Wilderness struggle, it would have been better if we had done what we did not do. Contemporaneously, we simply could not do it; and as stated under "Law" above, there was no legal or technical obligation in the matter.

Commenting, now, on Commissioner Emmons' letter to you, and Don Foster's address to the Wilderness Conference of March 26, 1957. When, commencing I believe with the Navajo Council, some of the tribes started objecting to the roadless order, the then Indian Bureau, instead of arguing with them, rushed into doing what they wanted or thought they wanted. The Bureau's pious remarks about its devotion to Wilderness were just public relations remarks; and its treating of the roadless order as being a violation of the Indian Reorganization Act was either ignorant or merely insincere. Right there in Don Foster's jurisdiction, the Klamath timber vastness, which he boasts of, was in process of being totally wrecked through an act of Congress with which the then Interior Department had concurred. The attempted break-up of tribal life was in full swing; the Indian and Eskimo reservations which Ickes had created in Alaska were under attack by the Territory and in Congress—an attack which the Eisenhower Administration did nothing to resist. But enough of Emmons', etc. apologias.

All the above tells nothing about what to do to re-create Indian roadless and, ultimately, wilderness areas. You know with what determination and passion a Tewan Pueblo and Taos Pueblo worked or are working to conserve their wilderness areas. Anthropological studies, and careful consultations with tribal leaders (who may or may not be members of tribal councils), plus your suggestion of compensation to the tribes for cash values real or imaginary which they might surrender, might get results. I think they would; but a lot of work would be necessary. Meantime, the present Administration has complete authority to restore, or establish anew, roadless areas.

I am returning Don Foster's statement. Shall keep the other documents unless you want them returned. Item: This letter is not confidential, though I am not sending a copy to anyone.

With all good wishes,
As ever,

John Collier, Sr.

Robert Marshall

In Indian Service, and later in the Forest Service, and in his many extra-official works, Robert Marshall moved in his actions and thinking between two poles of striving and of value which are universal in their implications. One pole was the wilderness. The other was modernity—Marshall welcomed the scientific age, the technological age, and the worldwide and also intimate clashes and changes which science and technology have brought. He was gladly a part of the irreversible onward plunge of the modern world. He believed that the plunge was an onward one even now—that the process of history had not turned permanently atavistic. Therefore Robert Marshall was also a leader in the struggle for civil liberties. The Robert Marshall Civil Liberties Fund, and the Wilderness Society, carry his work ahead in a difficult time.

Robert Marshall died in November, 1939, at 38 years of age. He had known through the previous years that a heart lesion might bring death at any hour. Undeterred, he journeyed on foot, often unaccompanied, across tens of thousands of miles of wilderness land, in Alaska and from the east to the west coast of the United States. Readers of his classic

book *Arctic Wilderness,* published in 1956 under the editorship of George Marshall, will realize the immensity of his wilderness adventures, continued until a few months before he died.

We were together, at the Cosmos Club in Washington, the night when he died. He was returning to New York by train, thence to go after a day or two to Asheville, and thence to walk down the Appalachian range as far as the Unakas. I described the Tusquittee mountain range to him. The three Tusquittee Balds, and the precipitous height reaching from these to County Corners, had been known to me, nearly forty years before, as a consummate wilderness; and even in 1939, no highway approached them, no forest fire had reached them, no rock had been blasted, and not even a single log cabin had been built. From their heights, at dawn, hundreds of mountain coves, far away into Georgia and far northward into the Great Smoky Mountains, glimmered under the night fogs. I asked Robert Marshall to walk to the Tusquittees, and to determine whether they might not be made permanently a roadless and "wild" area within the national forest. This he undertook to do. And that same night, in transit to New York, he passed to the endless sleep.

He who had walked seventy miles and been fresh at the end of it; who physically as well as intellectually and socially lived the athletic life; who had so much more to do, so much longer to live; and then the sudden word of his death. From happy brightness at once to the incomparable silence—to the woods of the universe. Within my own experience, there has been none other, except Ward Shepard (the ecologist, humanitarian, and social philosopher, who died in 1959), who has equalled Robert Marshall in the greatness of "gay science." And none other has quite replaced him in the endless journey to the heart of Wilderness and to the heart of man's social world.

I ought not to cease from Robert Marshall without a few words concerning his father and his brothers. Louis Marshall, a great man, transmitted greatness to his three sons. See *Louis Marshall, Champion of Liberty: Selected Papers and Addresses,* edited by Charles Reznikoff and published by the Jewish Publications Society of America, Philadelphia, 1957. Great as a lawyer, as a leader of the Jewish people, as a defender of all liberties and minorities, Louis Marshall also (near the very end of his life) greatly served the Indians. He served in laborious, technical ways; he held the powers of attorney of the Middle Rio Grande Pueblos, and verbally argued and then briefed their case (in the Middle Rio Grande Conservancy District matters) before the Indian Bureau and the Secretary of the Interior. His arguments were carried to the Senate floor in a prolonged and impassioned plea by Robert M. La Follette, Junior. Louis Marshall prevailed. Being with him in New York and Washington through his days of complete application (entirely

volunteered) to the Indians' cause, was an intellectual lesson to myself, and a moral exaltation.

There were three sons. One was Bob Marshall. One is James Marshall, active in the Association on American Indian Affairs, the president for many years of the New York City Board of Education, a lawyer active in various civil liberty cases, a potent worker in the American Jewish Committee, an author and a professor, and a governing member in The Wilderness Society. The other son is George Marshall, economist, civil libertarian and conservationist; George Marshall, managing editor and, later, consulting editor, of *The Living Wilderness,* member of The Wilderness Society Council, and member of the executive committee and publications committee of the Sierra Club. With George Marshall, it is to my benefit to be in almost daily correspondence now.

These few facts about the Marshalls, father and sons, cannot convey what I would wish to convey: the image of the greatness, the universal responsiveness and responsibility, of the Jew, the flame which burns on "age after age, 'til time shall be no more." Others of the Jews are named in this book: Felix S. Cohen, Nathan R. Margold, Theodore Haas, Fred M. Stein, Howard S. Gans, Max L. Rosenberg, Eliahu Elath, an Israeli Ambassador, Charles de Y. Elkus. There are others not named here. Without these many, the Indian New Deal would not have been born; the Pueblos might not have survived; and Wilderness would not have been brought to the center of American consciousness.

Wilderness Protective Legislation

The Wilderness Protective Legislation, enacted by the Senate after a five-year struggle (a struggle led to interim conclusion within the Senate by Senator Anderson of New Mexico), now languishes in the House. Every conservation body in the Nation supports this bill. The opposition and its stated and un-stated reasons are described below. The bill already (in the Senate) has been weakened. There is danger that if enacted in the House, the bill may prove to be only a ghost of its original self.

What is the Wilderness Bill? There exist administratively established wildernesses, whose acreage is slightly above two per cent of the Nation's acreage. Their commercial yield, if exploited to their total devastation, would be not two per cent but less than a thousandth of one per cent of the commercial yield of the whole national domain. They are mountains above the tree-levels, deserts, swamplands, and in part, inside the National Parks, forest land. Being administratively established, they could become administratively dis-established, as the Indian roadless areas have been. The Wilderness Bill would, after varying terms of years, and in the absence of specific Congressional vetoes, shift the administrative wildernesses into statutory wildernesses.

The bill is accurately described above. All details concerning it, the record of its stormy passage toward possible nothingness, along with unimpassioned reporting of its oppositions, can be found in the quarterly journal *The Living Wilderness,* published at 2144 P Street, N.W., Washington, D.C. This journal through the years has published, also, numerous important essays, and photographs, of "knock-out" beauty, of the wildernesses.

I now describe the opposition to the Wilderness Bill and to all wilderness, along with its reasons stated and un-stated; and then the meaning of wilderness as seen by thinkers from Thomas Henry Huxley to Robert Marshall and the ecologists of today, and lovers of wilderness such as Mr. Justice Douglas and the psychologist Gardner Murphy.

> After the tremendous pressures behind the Wilderness Bill, indicated by the hearings of 1957 [on the then Wilderness Bill, S. 1176, June 19 and 20, 1957] became evident, the resource users of the West became very much aware that they had a fight on their hands. When the hearings on S. 4028 [The then Wilderness Bill] were scheduled in 1958, Radford Hall, the late executive secretary of the American National, and Bill Hagenstein, executive vice-president of the Western Forestry Association, set up a meeting of the natural resource users to plan strategy to combat this dangerous legislation.
>
> This group met in Denver in October, 1958, and every natural resource using interest in the West was represented. The group was unanimously united in its opposition to the legislation, and agreed to cooperate in disseminating information to the grass roots concerning it.

The above, from the *American Cattle Producer.* The misinformation has been strenuously disseminated. Misrepresentation of the bill's contents, of its intentions and effects, has been poured forth at the subsequent hearings, and will be in the future.

As explained above, a meaningful economic motive for fighting against the Wilderness Bill does not exist. Yet with unanimity (so far as a search of the record reveals), the lumbering, grazing, mining, and commercial recreation interests have *ravened* against the bill since 1946. (An exception to sentence one of this paragraph: With the commercial recreation interests, a real economic motive does exist; with these, and with the real-estate speculating interests. Witness the abominations of commercialized desolation now far advanced on the Sandia Mountains, above Albuquerque; the shameful ignominy intended for Point Reyes. But Congress has now acted to make a national park of Point Reyes—at heavy cost because the land speculators had anticipated Congress.

At one level, the answer is a simple one. The resisting interests—to repeat, the lumbering, grazing, mining, and commercial recreation interests—are governed by a money-profit motive which has no bounds. To their mode of perceiving human affairs, Wilderness is an affront, a childish if not blasphemous protest against their own value system. As much can be said regarding conservation (both Nature and Life conservation);

the ideology of our profit-pursuing age is hostile to conservation, not only to Wilderness. But there is a difference. Total soil destruction, total timber destruction, total pollution of waters and of atmosphere—such total destruction entails the destruction of the profit-motive itself, and invites interferences by the Nation, by the Government, by Society.

But Wilderness is different. The profit-motive finds no use in Wilderness; and Wilderness can perish utterly in its remote silences, without bringing the profit-seeking temple down in ruin on men's heads. Wilderness therefore, as a symbol of all in the human aspiration and caring which holds itself out from the profit-pursuing imperative, can *safely* be crushed down. One after another of the absolutisms of profit-pursuit has been somewhat tamed, somewhat restrained, during the century behind us. There remains Wilderness, as a fact and an aspiration: Wilderness, which by its very definition says to the money-profit motive: You shall not enter here. Therefore, no Wilderness!

Item: the Multiple-Sustained-Yield Act of a time contemporary with the Wilderness Bill's bafflement. This Act's history (it was enacted in June, 1960) contrasts with the road-blocked history of the Wilderness bill. Fifty members of Congress vied with each other in introducing the Multiple-Use bill and minor variants of it. It became law through unanimous consent. As introduced "at the insistence of commercial lumbering interests" (House Committee on Agriculture), the bill would have been fatal to Wilderness and menacing to National Parks. Amended in Committee, the bill was self-declared not to be a substitute for the Wilderness and not a directive to encroach on the National Parks. Thus amended, the Multiple-Use Act does nothing except to reiterate the national forests policies as laid down by Theodore Roosevelt and Gifford Pinchot fifty-five years ago, and leaves with the national Forest Service the discretion as to *what* multiple uses shall apply to *what* bodies of land under its jurisdiction. However, in Mr. Justice Douglas' words, in his *My Wilderness,* "Multiple use in practical operation means that every canyon is usually put to as many uses as possible—lumber operations, roads, campsites, shelters, toilets, fireplaces, parking lots, and so on."

What Is Wilderness?

Leaving to one side the practically illusory hungers of the profit-motive, and its senseless alarms, there are four levels at which Wilderness can be viewed.

1. *Wilderness is the domain of tooth and claw:* There is no friendliness within Wilderness and can be no friendliness between it and man. To quote one of the great biologists of the pre-ecological age, Thomas H. Huxley, in his 1888 publication *Struggle for Existence and Its Bearing Upon Man.*

"From the point of view of the moralist, the animal world" (and the plant world, Huxley would have added) "is on about the same level as a gladiator's show. The creatures are fairly well treated, and set to fight; whereby the strongest, the swiftest, and the cunningest live to fight another day. The spectator has no need to turn his thumb down, as no quarter is given." Huxley continues, this time concerning "primitive" men: "Life was a continuous free fight, and beyond the limited and temporary relations of the family, the Hobbesian war of each against all was the normal state of existence." Modern "moral" man, Huxley believed, can have no relationship of sympathy with Hobbesian ancient man, and no relation other than a coldly exploitative one with forest and field, with wolves or squirrels or bears, or the winged ones, or even the humus and waters of the world. With bloodthirsty Wilderness and bloodthirsty primeval man, "moral" man has nothing to do, esthetically or ethically. Anachronistically, Lord Bertrand Russell appears to hold to the Huxleyan view even today.

2. *At the second level is Prince P. Kropotkin's book, Mutual Aid, published in 1902.* Surveying the whole record of man as man, Kropotkin did more than merely to challenge the Huxleyan "social Darwinism"; he permanently demolished it. The view of *intraspecific* mutual ravenousness had become elaborated into a social and political philosophy which insisted that *within mankind* the Huxleyan image of an everlasting gladiatorial combat was the true image. Challenging this image, Kropotkin brought to bear an immense range of precise facts. He utilized, more for its suggestiveness than for its scientific conclusiveness, data from the avian, insect, and mammalian worlds; but his monumental constructions were drawn from "savage" and "barbarian" human life, from the guilds and free cities of the Middle Ages, and from the life of poor men of his own day. The practical good sense of men in groups, he demonstrated, reinforced by universal insistencies of the human consciousness (a human consciousness wider and deeper than Sigmund Freud was dreaming of), had made of mutual aid "the leading light of man" since man was born.

Mutual Aid after fifty years "stands up." No research in the twentieth century has out-dated it. Rather, I suggest, no research or experience has out-dated Kropotkin. This, because his *other* great book, *Memoirs of a Revolutionist,* unveils as realistically as any book of 1900 could have done the *oppositions against mutual aid* which human life has engendered. Thus, his fundamental criticism of the prison system of the Europe of then and now and the America of then and now, is completely relevant, treating of prisons as they were and are, but reaching beneath the prison institution to the concept of punishment. The hideous racisms of Nazism, of South Africa, of parts of present North America, post-

dated Kropotkin; and they reveal foes to mutual aid more darkly intrenched in the human soul than the Inquisition; seventeenth century French absolutism and ultimately aberrant French Revolution; and modern prison systems in Europe and the Americas (Kropotkin knew and foresaw them) revealed. Yet Kropotkin's ruling thought reaches even to the darkest deeps; and Gandhi, Michael Scott, Martin Luther King, and the non-violent resisters of the "cold war" are the Kropotkins of our own era. Kropotkin himself, going back to Russia in his old age after the 1917 revolution, and witnessing there the cold ferocities which were to be continued through the Stalin epoch, is stated to have refused to permit Lenin to visit him.

Thus, *Mutual Aid* remains as a "voice above the conquer'd years," years not physically conquered as yet but conquering in the souls of men. As an essay on Liberty it is broader-based than John Stuart Mill's classical *Essay on Liberty,* and even more eloquent, because through it the voice of man speaks from very long ages gone, and ages yet to be if there is to be any human age.

3. *The third level for viewing Wilderness is the biological ecological level.* Ecologically understood, our planet itself, with its atmosphere, waters, and soils, and all of its animate life, is one single event. The event, in its multitudes, complexities and interdependencies, in its unexhausted potentials and its inexhaustible *ranges of liberty* far exceeds the conceptual reach of any age prior to our own, and far exceeds our own age's conceptual and emotional reach; though it does not exceed our own age's *contraecological power to destroy.* To quote J. Arthur Thompson (in his volume *Life,* and other writings): "The hosts of living organisms are not isolated creatures; for every thread of life is intertwined with others in a complex web. . . . Just as there is a correlation of organs in the body, so there is a correlation of organisms in the world of life. . . . So we begin to get a glimpse of a vast self-regulating organization."

Paul B. Sears, a leader among American ecologists and conservationists, states a now-accepted view of the "ecological climax": "Within each province (life, earth, water, air), all the diversity of living communities represents a series of changes or stages toward an ideal limit, the limit of a stabilized climax of fauna and flora." This aeonian self-propulsion of not one but many thousands of inter-related earth-water-floral-faunal ecological communities, toward "ideal limits of stabilized climax," *can* be explained, in one and another isolated detail, by mechanistic neo-Darwinism; but not this way did ancient man, who *perceived* the ecological climax, try to explain it; nor does the immortal child in man try this way; nor do the poets of whatever epoch, nor the biological

philosophers from Aristotle through Gustav Fechner and Claude Bernard and A. N. Whitehead, to our immediate contemporaries R. S. Lillie and E. S. Russell. So, to our fourth level for viewing Wilderness.

4. *The achieved "ecological climax" is the Wilderness.* Cosmical purpose, the billion-years-continuing striving of the cosmical Artist, the God within Nature, has made the Wilderness, and has made that in the human being which longs for Wilderness. There is no room in this chapter for an argument about cosmical-biological directiveness or purposiveness; but the whole of this book points toward that which mankind perceives in nature—the deepest and highest, if the most undemonstrable heart of mankind's own purpose. As for what it is that we humans know from birth, and know anew in spiritual maturity, I quote from Gardner Murphy in *Human Potentialities,* published in 1957. A few sentences only, from Murphy's chapter, "Boundaries Between Person and World":

> We shall get further in the long run by stating our program in tentative but positive terms: that man, being of the stuff of which the universe is made, whatever that stuff may ultimately prove to be, may have deep affinities with it, deep resonance to it, deep isomorphism with it. . . . To understand man more fully is, therefore, to understand more of the nature of the cosmos, and vice versa. It is likely (as Edith Cobb so brilliantly shows in her forthcoming studies) that the tiny child, long before he can verbalize, resonates to cosmic patterns with a deep sense that this is basically he himself; long before there is a socially defined self he senses a rhythm, a dynamic pattern in the world which he also senses in an isomorphic form within himself. To the rhythms and cadences of sound about him, he makes a re-echoing response through his own limbs and his own vocalizations, not through an instinct of imitation, but because he is of the same stuff as the world. . . .
>
> Our thesis would be that there are many possible natures within man, from which he must *freely* choose. . . . The potentials of self-fulfillments lie scattered there beyond the horizon; and man, with all the wisdom which he can marshall, must strive to define them—and then to choose among them.

Murphy's own definition, and his own choice, is evident in the writings and the scientific explorations of this greatest of the psychologists since William James: a meaningful universe, which is known by the human being in his deeps, and which knows the human being from within its own deeps.

The "ecological climax" contains the human climax within itself. Such is the most ancient utterance of the silent Wilderness to present man, as it was to ancient man. Such is Wilderness, which our own generation must choose to keep or to destroy forever.

Summaries of the proceedings of the first three biennial Wilderness Conferences were published in mimeographed form by the Sierra Club, while those of the Fourth and Fifth Biennial Conferences appeared as printed pamphlets under the same sponsorship. In addition, the Fifth Biennial Wilderness Conference was fully reported in the SIERRA CLUB BULLETIN, *June 1957, under the title* WILDLANDS IN OUR CIVILIZATION, *the theme both of that Conference and of the present volume.*

II

SUMMARIES OF THE PROCEEDINGS OF THE FIRST FIVE BIENNIAL WILDERNESS CONFERENCES

The First Conference,
APRIL 8–9, 1949

The Second Conference,
MARCH 30–31, 1951

The Third Conference,
MAY 15–16, 1953

The Fourth Conference,
MARCH 18–19, 1955

The Fifth Conference,
MARCH 15–16, 1957

THE FIRST BIENNIAL WILDERNESS CONFERENCE, April 8–9, 1949

High-Country Meadows

Discussion Chairman: P. A. Thompson, Regional Forester, U.S. Forest Service

Introductory Speaker: Lowell Sumner, Biologist, National Park Service

Mr. Sumner pointed out that in mountain meadows the trend has been toward destruction for some seventy years. Some have vanished; others will follow unless we do something to save them.

Three factors contribute to meadow destruction: cattle, surplus Government and packers' stock, and overuse by visitors. The first two factors are either local or are already being taken care of. The third factor is the most pressing because it is of increasing importance, under present population trends (by 1990, many statisticians believe we shall have three times the present population in California) and with the increasing popularity of the mountains. This trend requires us to take decisive steps now against further meadow destruction.

Meadows may be classified as the short-hair type above tree line, and the wet meadows of the lower forested belt. The latter are scarcer and more vulnerable. They are essentially basins of moist sand. Many of them are lakes that have silted up. The lake is still there below the level of the sand. They are very old and, if undisturbed, they change only with geological slowness. Their continued existence depends on maintenance of the water table at its present level, thus favoring grass but preventing encroachment by forest trees. Anything that causes lowering of the water table damages the meadow. If trampling (as in severe overgrazing) opens the outlet, so that the underground lake is drained, grass dies out and tree seedlings become established. Climatic fluctuations do not harm undamaged meadows, but those that are half-drained cannot withstand droughts or floods.

Once soil and humus are gone there is little that can be done. The best we can do is stop the loss. In most of the damaged meadows the dropping water table can be halted at the present level. The real problem is how to bring meadows back without having to stop all grazing.

One way would be better tourist distribution. At present a few routes are heavily used year after year, not necessarily because they are most scenic but because that was where the old stock trails were established. To take some of the load off the badly beaten places will require construction of new trails or reopening of old ones, and wise use of available meadows. Groups like the Sierra Club and the High Sierra Packers' Association may be able to foster better distribution, allowing overused meadows to recover. A second suggestion is to limit the stay of large parties in certain widely spaced small meadows. Another method is to spare such meadows by packing in hay. The Sierra Club has already done this. Still another suggestion

is to require registration with the Forest or Park service in advance of the proposed trip for all parties using twenty-five head of stock or more. These parties can then be routed to avoid excessive use of any one meadow. But regulation of numbers and length of stay should be based on the number of horse-nights of forage available in each meadow. Better utilization of smaller adjacent meadows may be brought about by construction of trail bars and drift fences.

Clearing meadows of brush and trees has often been advocated. This is not the primary problem; brush removal alone may merely expose the soil to more rapid wash and wind erosion. The water table must be restored first. When this is done invading trees and brush die out and disappear because the ground is too wet for them. If we can regulate the grazing and raise the water table we may not have to bother with removing trees.

Mr. Thompson then added his comments. The high-country meadows are the heart of high-country recreation, but are succumbing to the influences the recreationist brings with him. We must either check the damage or lose the meadows. Grazing is perhaps the most serious factor, although all camp-making activities contribute to damage. To start the discussion he suggested that we may have to stop all grazing, and that supplies may have to be flown in—should we also pipe in water, build campsites off the meadows, put up shelters for storing supplies?

A spokesman for the Packers' Association said, "There is less commercial stock in the mountains now than there was in 1936." He then gave, as the packers' recommendations, three points that were subsequently incorporated in the summary report.

In the general discussion the following additional points were made:

Privately owned and operated stock and that of independent packers adds to the grazing burden, particularly in hunting season; it, too, should be subject to regulation, say Packers' Association members. They deplore the practice of some hunters, who hire men to go in and hold a particularly desirable campsite in advance of the opening of hunting season.

Packing in hay carries certain hazards. We may introduce foreign weed seeds into the meadows, to their detriment (as thistles were introduced into Yosemite Valley). The Sierra Club's hay-packing experiment was carefully safeguarded by feeding the hay on dry gravel, where weeds could not get a start. If hay were dropped from airplanes, weed seeds would probably be widely scattered.

Hope was expressed that we could keep the High Sierra Wilderness free of airplanes, except as required for fire control.

Though development of new routes might alleviate the present overuse, would it lead eventually to deterioration of the whole wilderness?

The Forest Service is well on the way to eliminating all sheep and cattle grazing from the high country in California. Some meadow-restoration projects have had gratifying results; gully plugs check further dropping of water tables and reduce erosion, and in some places successful and unobtrusive small-scale irrigation has been achieved by diverting water into old channels.

Trails in the High Country

Discussion Chairman: Ray Buckman, Director, High Sierra Packers' Association

Introductory Speaker: Walter A. Starr, Editor of *Guide to the John Muir Trail*

Mr. Starr reviewed the history of trail-building in the Sierra, beginning with the Indians' trails across the passes, continuing with those by which miners and stockmen penetrated the Sierra from both west and east. On all these, accessibility and the availability of feed determined the routes. Very little work would be needed to reopen some of these old routes; we do not need high-standard trails in the

high mountain wilderness area. Mr. Starr told of early exploration and surveys by Sierra Club members and of the visualization and construction of the John Muir Trail.

The principal problem of trail maintenance is obtaining funds. For the last ten years neither government service has had more than a fraction of the money needed for trail maintenance. The trails have been badly neglected in consequence; they are in worse condition today than in the days of the cattlemen. Another problem is effective organization. Often trail crews are found to be accomplishing very little. They need supervision by someone who knows trail construction.

Trail relocation should be studied. Many trails seem to have been made in a haphazard way; they should go around meadows rather than through them, and should cross or climb steep slopes in such a way that they are not subject to nor the cause of excessive erosion.

Problems of trail location and construction include many of the problems on the conference agenda. Protection of high mountain meadows and keeping the wilderness wild are among many factors inextricably related to the trails that provide access and channel the flow of tourist traffic.

As use increases, increased regulation and wise administration become imperative, if we are to preserve the wilderness. The mountains are already reasonably accessible; perhaps we ought not to build many more trails. Should we not assure future generations the satisfying and beneficial experience of finding ways through where no trails exist?

In the discussion, Regional Director Tomlinson reported improvement in the National Park Service budget for trails; this year's appropriation is to be received in a lump sum for allocation where the need is greatest. Yosemite and Sequoia and Kings Canyon National parks will have twice as much money for trails as they had last year. Mr. Thompson, however, reported reduced funds for the Forest Service trails, and a directive to charge fees for recreational use of the forests.

Superintendent Scoyen, of Sequoia-Kings Canyon, exhibited a large map of the area on which were indicated trails, points of entrance to the wilderness area, headquarters of permitted packers, and proposed new trails intended to spread the use. He cited specific examples in which new access trails could increase pasturage tremendously. He believes that with some spreading out of the grazing load, and with a limitation on packers' permits, actual use of the back country can be effectively regulated. While agreeing with Mr. Starr's point that trails should not be built to too high standards, he urged that the standards be high enough to be economical, so that the trails will not require constant maintenance work.

Some discussion of the Taboose Pass trail brought out the point that coöperative project here (between Forest Service and Park Service) could relieve overuse of the Kearsarge Pass area.

It was pointed out that at least one Forest Supervisor had succeeded in stretching meager trail funds by employing packers to do the most needed work while on the site, rather than sending special trail crews long distances for small jobs. It was further pointed out that larger parties can do a good deal of clearing and minor repair as they travel through the mountains.

Education for Wilderness Travelers

Discussion Chairman: John H. Baker, National Audubon Society

Introductory Speaker: Carl P. Russell, Superintendent, Yosemite National Park

Dr. Russell indicated that those who use the wilderness as a vacation resource may be divided into two groups: those who are real wilderness lovers (and there-

fore conservationists), and those who wish to do their wilderness adventuring in a well cushioned chair attached to some form of internal combustion engine (Neuberger, *Harper's,* October 1948). The latter are far more numerous, and it is of them that we need to think. People come swarming into the parks and forests who do not have our outlook on wilderness.

What are we going to do about them? This is our educational problem. Some of the means by which it can be met, and is being met, are as follows:

The packer, who escorts these people into the wilderness and is in contact with them for perhaps days at a time, has an especially favorable opportunity and a responsibility for their indoctrination. The Sierra Club, as one example, absorbs many of this group into its membership and eventually makes conservationists of them. The administrator has them on his hands in tremendous numbers—and he must accept them as seekers for beauty, and educate them as well as he can.

Education in wilderness appreciation goes back to John Muir. Its beginnings, on an organized basis, were in the Nature Guide movement, started in the early 'twenties. That work is a part of National Park Service interpretive activities. By 1940 there were 750 park naturalists throughout the United States (although only 60 of them were in the National Park Service group), and there must be more now. Such organizations as the National Audubon Society, with its nature camps for the training of teachers, are making an important contribution to the appreciation of nature and of wilderness.

Education in wilderness use is something else. The issuance of campfire permits offers other opportunities for making actual contact with people who will use the back country. Either at Park Headquarters or at the District Ranger's office in the field, the visitor can be advised on the back-country campsites that are desirable, convenient and safe, and given an information sheet. Added to the information is the suggestion, "If you have enjoyed camping at this scenic spot, we invite you to contribute to the preservation of its natural beauty."

Supervision of recreational grazing in the high country affords another very important educational opportunity, through which the district ranger can make personal on-the-spot contacts with a great number of users.

Distribution of printed trail guides—which presumably travel with the users and then are carried home to others—is highly desirable, but no park funds are available at present for printing interpretive material.

Registration of climbers is another opportunity for personal contact and interpretation (probably as much education is carried on by rangers as by the interpretive staff).

Education in the parks upholds the philosophy that preservation takes precedence over use. National Park Service personnel is insufficient, however, to provide the needed services in education and protection.

In the discussion the following points were brought out:

All of us have a responsibility in providing a broad concept of conservation for those who go with us into the back country. It is essential to our national life and strength that we preserve our soil and water and plant and animal life in balance. Man is inescapably a part of this biological complex.

The essence of the problem is to make the public more keenly aware of the necessity for protecting our resources against fire, overuse, and thoughtless abuse.

Two or three decades ago youth groups were taught how to blaze trails through the wilderness. Today the wilderness is too scarce to permit that, and we must seek other programs that not only satisfy the pioneer spirit but also work for protection of the remaining wilderness.

The packers are in a particularly favorable position to inculcate in their clients sound views and practices—fire control, keeping camps clean, intelligent use of fish and game resources.

Education in wilderness protection must be begun early, in the schools or in youth organizations. The Forest Service considers use of its areas for youth camps among the most important. These camps provide opportunity for education at the most advantageous age level—the middle-aged or even the young man is less sus-

ceptible to conservation education than the school-age youngster. Coöperation with schools is of extreme importance.

Programs for educating teachers (as in certain "Conservation Workshops" given as summer-session courses with college credit) or for training interpreters (as in the Yosemite Field School) are of great value.

The National Council on Conservation Education (Dr. John W. Scott, Chairman, and William Voigt, Jr., Secretary), is making a study of the field and should be informed of action taken here.

Wildlife Management Affecting Wilderness Areas

Discussion Chairman: Major O. A. Tomlinson, Regional Director, National Park Service

Introductory Speaker: F. P. Cronemiller, Chief, Division of Wildlife Management, United States Forest Service, Region 5

Mr. Cronemiller gave brief accounts of the various forms of wildlife characteristic of the High Sierra Wilderness, telling something of their habits and their history, and emphasizing that hunting and trapping of these animals affect the wilderness only as they affect the general population density of these groups, but discussing to some extent the interrelationships between hunting and trapping, predator control, and habitat changes. He discussed the pine marten, the fisher, the wolverine; the deer, the bighorn sheep; the grouse; and fish. Stating that probably 90 percent of wilderness travelers are attracted to the wilderness areas by fishing—or at least interest in it—he discussed fish planting as a management problem. He pointed out, however, that in wilderness areas not much planting can be done, and at least 75 percent of the trout there must come from natural reproduction. He pointed out that our fish habitat is imperfect—"Nature didn't build this country right"—and that our peculiar climate, with all the precipitation in the winter, does not assure a favorable environment for fish survival. He then called upon William A. Dill, Biologist for the Division of Fish and Game, to discuss methods that might be used for improving natural fishing in our wilderness areas.

Mr. Dill said that in the past, management had consisted almost entirely of fish planting (in which the packers have given considerable coöperation). Much of the Sierra was barren of fish until planting was begun. Interest is now swinging toward habitat improvement, which would increase natural reproduction. In the high granite country, streams dry up in the late summer and fall. In a number of areas check dams have been built to store water for release during the dry season, and the Division is studying the results with interest. Division policy could probably be expressed as opposition to the construction of high dams unless there is great intensity of fishing, and a wish to have all dams as natural and compatible with the environment as possible; he assured the group that there is no "wish to rush into a program of check-dam development in wilderness areas as long as fishing intensity remains low." Regulation of fishing intensity in the high country is of growing importance. The packer has probably the most important role in spreading the public out over large areas so as to avoid heavy use of one particular stream. Airplanes, jeeps, and rubber boats dangerously increase fishing intensity.

In the discussion it was brought out that fishermen prefer to find native species in the streams, and Mr. Dill stated that, although early fish planting was indiscriminate, the policy is to adhere to native species as much as possible.

Mr. Sumner pointed out that management of wildlife and wilderness preservation are somewhat incompatible; the kind of management discussed here is essen-

tially restoration of species and planting of fish, but wildlife management is usually taken to mean production of a species as a crop for man's use. Restoration of environment is appropriately a part of wilderness preservation, but increased production of some types of animals by suppressing others is not. We harm the wilderness by exterminating mountain lions, for instance, in order to raise more deer (that may then find insufficient food for their increased population). In the wilderness we should try to preserve or restore the natural balance.

Other points made in the discussion:

When we speak of stream improvement, it is usually improvement only for the trout. Other fauna are affected, perhaps adversely.

In national parks, at least, no one species is regarded as more desirable than any other; thus we do not advocate predator control there.

In areas where rodents must be controlled because of the diseases they carry, we should teach people to avoid all rodent contact.

Mr. Zahniser emphasized the complexity of relationships in the wilderness and the danger inherent in disturbing them by pointing out that predator control can lead to deer eruptions; the deer eruptions may so injure the forest that hunters must be brought in to remove them; to get the hunters in, roads or airplanes may be required. Thus, by controlling the predator, we end up destroying the wilderness.

Camping in the Wilderness

Discussion Chairman: Millard M. Barnum, Chief, Division of Recreation and Lands, United States Forest Service, Region 5

Introductory Speaker: Richard M. Leonard, Chairman of Outing Committee, Sierra Club

Mr. Leonard showed how problems of camping in the wilderness become important as we approach saturation use. We must accept some type of regulation if the wilderness is to be protected even though subjected to heavy use.

One of the biggest problems is leaving camps clean. Frequently used camps become littered with cans and trash left by careless and ignorant campers; succeeding campers naturally lose interest in disposing of their own rubbish. We should try first to get these camps clean, then to keep them clean. Packers have cleaned up many of them; so have some of the larger camping parties with plenty of manpower. Park and Forest services are too short-handed to do much, but coöperative efforts should accomplish a great deal. Boy Scout parties have been subsidized for clean-up campaigns, with moderate success.

What about disposal problems? What are the best methods? To dig garbage pits in the meadow may injure the meadow itself. Elsewhere may be too rocky to dig. Garbage and cans should be burned, lest animals dig them out, but firewood may be too scarce. Further, should charcoal and fire-blackened rocks be buried? Or is it better to confine the fires to one place by leaving rocks set up?

How may we best educate campers to keep camps in good order, once we get them cleaned up? Registration and the issuance of campfire permits provide opportunity for contact and education, as well as control. But how much control is desirable? In essence, the Forest Service issues campfire permits and the campers tell the ranger where they are going, while the Park Service issues permits and the ranger tells the campers where they may go. Fairly rigid control is of course necessary along roads but may be inappropriate in back country. Granted that it is useful to know where a party is going (to fix responsibility for abused campsites or to find an individual in an emergency), is this much regimentation de-

stroying one of the values of wilderness? How much regimentation should we be obliged to accept for the protection of the wilderness, under present conditions or under increased population pressure?

In the discussion, it was evident that everybody recognized the need for education, but was uncertain how it could best be accomplished. In addition, these specific points were emphasized:

Mr. Livermore favored further trial of the Scout clean-up parties under more definite direction. He also thought some sort of record of parties at a campsite was needed, to fix responsibility for dirty camps. He considered burying cans generally impractical, and proposed to try packing some out.

Another packer expressed the view that it is the responsibility of the Park and Forest services to provide facilities for refuse disposal, but Mr. Thompson objected that, although those *are* service responsibilities in the public camps, in the back country we could get into a vicious cycle of having more and more regulations and more and more paid employees cleaning up after campers, which would be incompatible with our idea of wilderness. Wilderness travelers should be able to clean up after themselves. If we start building improvements in the wilderness, where will they stop?

Mr. Brower suggested that large parties, having cleaned up their campsites, might dig and leave open smaller pits for the use of campers who follow. *Mr. Kehrlein* urged that when efficient methods of refuse disposal have been worked out, future campers should be educated in these methods. A booklet on "How to Take Care of Yourself in the Wilderness," including instructions for garbage disposal, could be prepared for distribution by packers and by Park and Forest rangers.

Mr. Farquhar spoke for less rigid regimentation of knapsackers, pointing out that the total number is small and that they seldom know (and should not be required to promise) where they will wish to camp a week hence.

Mr. Allie Robinson believed that registration should be required of all campers (he pointed out that there is now no control over the private party or the "bootleg" packer). Instruction material could be issued at the registration point. Registration and education should help in keeping the camps clean.

Mr. Buckman pointed out the practical difficulties of registration in a place like Mineral King, where five passes lead out and the nearest ranger is 21 miles away. He urged, though, that when parties register, all names and the proposed itinerary should be included.

Keeping the Wilderness Wild

Discussion Chairman: Byron Beattie, Supervisor, Sierra National Forest

Introductory Speaker: Howard Zahniser, Executive Secretary, The Wilderness Society, and Editor, *The Living Wilderness*

Mr. Zahniser made it clear that protecting the existing wilderness against conflicting demands for other uses, and providing for reservation of additional wilderness areas, is only a part of our concern. Safeguarding the wilderness that we do have involves, really, the wildness of ourselves and other visitors to the wilderness. We have an inborn tendency to make over the wilderness rather than to adapt ourselves to it.

Wilderness is an intellectual concept as well as a type of physical environment. The intellectual concept is important. We use the expression, "Freedom of the Wilderness." Wilderness is an area wherein we are not managing anything and are not being managed while we are there. That is what we should safeguard. (Paradoxically, we want to manage wilderness areas so as to preserve freedom from

management.) In the back country specifically designated as wilderness our concern should always be with the preservation of its wilderness character and the authenticity of the wilderness experience that we have there. These, the human values of the wilderness, are the most easily sacrificed. What we take into the wilderness with us may destroy that authenticity. It is a fortunate thing that we do have a conscience or a taste that tells us when wilderness is being compromised a little bit.

It is more important to safeguard the authenticity of the experience we have in the wilderness than to make it of long duration or to provide it for large numbers. We wish, of course, to have as many as possible share wilderness experience—but we still want the wilderness to be wild when we get there, and to experience it *as wilderness.*

Granted that the status quo is optimum, we may, in order to preserve wilderness and authenticity of experience, have to insist on registration, then on reservation, and eventually on rationing. That may be half a century away, but in our thinking and planning today we should prepare for it. We ourselves should affirm our devotion to the wilderness by eschewing all the little conveniences that may in the end alter that devotion.

Restrictions on their activities might permit a lot of people to be in the wilderness without causing administrative difficulty or jeopardizing the wilderness. But we would do better to restrict the number of people in the wilderness and let those who do go into it have a real wilderness experience when they are there.

Mr. Beattie opened the discussion by pointing out that we are deeply concerned with the conflict between wilderness use and maintenance of unchanged wilderness habitat. He also suggested that we may have differences of opinion on what "wilderness" implies and what is proper in a wilderness.

Lewis Clark said we have almost no chance nowadays of finding absolute wilderness such as our forefathers encountered, but that we must maintain conditions that are as natural as possible. Most of us accept trails, and probably we should be willing to accept simple man-made structures that are necessary for preservation of the area, if they are constructed of native materials.

Superintendent Scoyen offered the opinion that our most serious threat is the increasing pressure for economic development. Mr. Leonard agreed that we are all aware of this major threat, but that the organizations represented at the conference are firmly bound to fight economic encroachments to the limit and that our present problem is to keep what wilderness we now possess from being damaged by our own use.

Mr. Baker pointed out that the problem has two aspects: to prevent alterations of soil, water and plant and animal life, and to exclude the extraneous sights and sounds that disturb the wilderness traveler.

Mr. Livermore said, "We all know we are in favor of wilderness, but let's get in the record—no dams, no roads, no nothing except wilderness!"

Mr. Cronemiller pointed out the importance of setting up defensible boundaries about the wilderness areas.

Miss James stated that our final defense against encroachment lies in a strong and informed public opinion, developed and kept alive by our small conservation groups. To build and maintain a public opinion that will rally to the defense of forests and parks is our major problem and responsibility.

Mr. Brower urged sound planning for education in the schools on the values of wilderness. The Forest Service has done a good job of making people realize the importance of trees; we should do as well to make school children and the general public conscious of the values of wilderness.

Mr. Thompson urged that we agree on a reasonable concept of what a wilderness ought to be and what would violate it; extreme views are too likely to be defeated. A program of education must have a sound, generally acceptable foundation. We may eventually have to accept the modification implied in Mr. Zahniser's three R's—registration, reservation, rationing.

High Country Administration Problems

Discussion Chairman: Bernarr Bates, Travel Editor, *Sunset*

Introductory Speaker: John R. Barnard, California Vice-President, Federation of Western Outdoor Clubs

Mr. Barnard pointed out that within the High Sierra region there are three national parks, a national monument, and three Forest Service wilderness areas; with seven administrators, a high degree of coöperation is needed, and there is ample evidence of it. (Examples of admirable coöperation between agencies were given.) There are always problems, however. Decisions made by the Park or Forest service may be practical from the service viewpoint but none too palatable to wilderness users. For this reason, in particular, uniformity of regulations is highly desirable. Understanding and compliance will be easier if rules are alike in all areas. Of course a difference in administrative purposes makes complete uniformity impossible (hunting, for example, is permitted in national forests but not in parks), but over-all protection would be enhanced by as much uniformity and simplicity in regulations as possible.

Where two or more governmental agencies are involved in one problem, coordination of planning is important. Proper initial study would have prevented the great difficulties occasioned by the Bureau of Reclamation's project to build a dam on Lake Solitude, in the Cloud Peak Primitive area, or the Army Engineers' attempts to get approval of the Glacier View damsite in Glacier National Park. On a smaller scale, trail-building plans should often be a joint project between Park and Forest services. Uniformity—or at least coördination—of regulations with respect to aircraft would eliminate such problems as in the Superior Roadless Area, where air travel is invading what would otherwise be well protected wilderness.

In the ensuing discussion, Professor Joel Hildebrand urged better enforcement of regulations and more effective education of wilderness travelers on the spot by roving rangers who might turn up in any camp at any time. He recognized the scarcity of ranger personnel and stated that we should make every effort to secure adequate appropriations for both services. He also urged increased use of campfire-program talks and campfire permits as vehicles for wilderness education. Mr. Bates also spoke of the need for greater appropriations for adequate ranger forces.

Mr. Buckman suggested that issuance of a permit might be like that of a driving license—the applicant should prove some knowledge.

Mr. Brower suggested that the services explore the possibility of deputizing competent persons to help patrol the back country.

It was generally agreed that a greater ranger force is necessary to carry out all the responsibilities of back-country administration.

THE SECOND BIENNIAL WILDERNESS CONFERENCE, March 30–31, 1951

Wilderness and Mobilization

Discussion Chairman: Lawrence C. Merriam, Regional Director, National Park Service

Introductory Speaker: Sam Davis, President, High Sierra Packers' Association

Mr. Davis, in suggesting possible effects of mobilization needs on wilderness use and administration, stated, "Yet we cannot afford to make mistakes because we are under pressure." It was generally felt that long-range policy should be firmly adhered to.

Among points raised were lessened appropriations and the best use of what money and manpower resources may be available; probability of pressures for such invasive uses of wilderness as troop training, lumbering, power and mining activity; the importance of wilderness recreation during wartime. In subsequent discussion it was pointed out that the pressures in "emergencies" are seldom from the public or its agencies, but usually from private interests seeking opportunities for special permits.

The use of wilderness for military recreation and for military training was discussed. The tendency to use wilderness for maneuvers was deplored; men with experience in military training pointed out that lands outside the wilderness could be used just as well.

There was a plea that we accept present conditions, not as an emergency, but as "a new normal," and meet them without hysteria.

Wilderness and Wildlife Management

Discussion Chairman: Walter L. Doty, Editor, *Sunset Magazine*

Introductory Speaker: A. Starker Leopold, Associate Professor of Zoology, University of California

Dr. Leopold stated that some species of wildlife thrive best in complete wilderness associated with climax vegetation (though deer, bear, beaver, grouse, rabbits are tolerant of human influences and do well in spite of them). Our particular concern should be with the species that are harmed by effects of human activity and

can exist only under undisturbed wilderness conditions. These animals are the bighorn sheep, wolverine, fishers, and condors.

The preservation of these species can best be accomplished by the maintenance of primitive conditions in their critical habitat. Predatory animals should not be controlled in these wilderness areas.

Where mountain sheep seasonally stray from their wilderness habitat and come into conflict with deer and domestic animals, the latter should be regulated to favor the mountain sheep.

Wilderness and Land-Use Conflicts: How Can They Be Reconciled?

Discussion Chairman: Stuart R. Ward, Executive Secretary, Commonwealth Club

Introductory Speaker: Everett A. Pesonen, Administrative Officer (Conservation), Bureau of Reclamation; A. T. Spencer, formerly President, California Woolgrowers' Association; Norman B. Livermore, Jr., Owner-operator, Montesol Lumber Company; Jack C. Fraser, District Fisheries Biologist, Tahoe District, Division of Fish and Game

In opening the topic, *Mr. Pesonen* stated that there are so many different values in wilderness, and that approaches to the problems of wilderness are often emotional. Further, where there are conflicting land-use demands, different government agencies may appear to be opposed to one another, although the conflict is between demands rather than between agencies.

He expressed his belief that there is much greater realization of the significance of wilderness values among engineers engaged in water-resource planning now than ever before, and that various conservation agencies now have a better understanding of and sympathy toward one another. He urged that "recreation . . . be made a function of multiple-purpose water control projects so reservoirs may make the maximum contribution in the way of recreational opportunities and thereby help to relieve the pressure on wilderness areas."

Mr. Spencer declared that range management is the grass-roots basis of the stock business, and that there is real competition for the grassland resource in recreation areas. As the population increases the wildlife and stock move out. He pointed out that administration of wilderness in Forest Service areas (with multiple-purpose use) is different from that in national parks, where "the resources are locked up." He emphasized the importance of grassland in meat production. He believes that increased range-management study is more important than use of wilderness as a control to show what nature can do.

Mr. Livermore quoted several lumber operators' views on wilderness; most of them had said in effect that they favored reservation of areas that are of high value as wilderness but of low value for anything else. Some thought that timber operations need not interfere with recreational use, and that reservation as wilderness is therefore unnecessary. One believes that timber in wilderness areas should be harvested selectively, though he would approve preservation of "strips on the main traveled roads in their natural state." Those who seemed to understand more clearly what wilderness is and why it should be preserved still doubted the wisdom of having so much merchantable timber kept inaccessible in parks.

These quotations illustrated Mr. Livermore's point that part of the difficulty in preserving wilderness is that the public has a very loose idea of what wilderness is. He added his own definition: an area large enough so that people traveling into it have to camp out, and attractive enough that they *want* to camp in it. Though

declaring himself a lover of wilderness, he raised the question of how much ought to be set aside; he thinks too much timberland was taken out of production in the establishment of the Olympic National Park, the lowlands of which contain ten per cent of Washington's remaining virgin timber.

Mr. Fraser explained the program for stream-flow maintenance through construction of a few small dams on high lakes to alleviate late-season drying up of streams and to permit fish in lower lakes to move up and spawn. Some of the most favorable sites for these small dams are within wilderness areas. He stated that the objective is no more disturbance than necessary; sites are chosen on lakes that have few fish anyhow or where fluctuation in level will have little effect on habitat or fish population. The Division of Fish and Game considers these dams justifiable from a fisheries viewpoint; Mr. Fraser believes that Fish and Game would strongly combat encroachment (i.e. hydroelectric projects), but that a few little dams would have slight influence on the outcome of that conflict.

In turning the topic over to general discussion, Mr. Ward commented on the many demands for exceptions to wilderness-preservation principles, and said that the wilderness might be like the frog that was boiled to death a degree at a time.

Arthur Blake (Sierra Club) asked Mr. Pesonen if the Bureau of Reclamation was interested in the irrigation-water possibilities in flow-maintenance dams; Mr. Pesonen said that the storage was insignificant.

Mr. Blake also asked Mr. Spencer about the trend to fatten stock on the home ranch; Mr. Spencer quoted the large acreage of irrigated pastures in California now, and said that the irrigated pastures are the finishing lands, but the ranges are the breeding lands. Mr. Beattie (Forest Service) stated that, in the Sierra National Forest, at least, there is a voluntary decline in grazing permits within the last decade; he told of a 400-head "preference" near Kings Canyon dropped because it was not economic.

Herb London (Packers' Association) raised the question of a firmer definition of wilderness, which he feels is "a small segment—a holdover—of our heritage" and worthy of strong protection. He asked, "How can you regulate all these little piece-meal attacks so they don't devour the whole wilderness?"

P. A. Thompson (who identified himself simply as "a conservationist") insisted that "conservation" must include use, and that the United States Forest Service policy under regulation U-1 permits small dams and grazing. He felt that some compromise is necessary as population pressures increase, and that we cannot hope to hold wilderness at all if we try to keep it free of compromise.

Hilary Crawford (California Alpine Club) remarked that he thought that that was surrender rather than compromise.

John W. Spencer (Izaak Walton League, formerly Forest Service) stated that reconciling other uses with wilderness is impossible. Wilderness is not a multiple-purpose area and we cannot say that in wilderness other uses have equal rights with recreation. We cannot reconcile these other uses with wilderness; we can only tolerate them to the extent that they do no lasting damage.

Richard Leonard (Sierra Club) urged that we clarify our thinking about our primeval areas wherever they may be: whereas it would be possible to *manage* them for more pounds of meat or more acre-feet of water, we ought to have at least this small sample of our land kept unmanaged, to show just how it used to be.

Elmer Aldrich (Beaches and Parks) pointed out that whatever we have achieved in wilderness preservation has always been on principle. *Howard Zahniser* (Wilderness Society) reinforced the plea that action be based on principle, not on case-by-case decision and exceptions. "The only line we can draw is the boundary line."

Byron Beattie (Forest Service) and John W. Spencer emphasized the threats in the mining laws, under which a man who has a valid claim can build a road and carry on mining operations even within wilderness area. They consider these threats among the most serious of all the conflicting demands on wilderness.

Mr. Ward closed the session with a plea for the consideration and full appreciation of the intangibles: "What is the value of looking at a forest slope without mine tailings? . . . of not having artificial dams? . . . of a campfire with no traffic sounds? . . . of alpenglow seen without intervening power wires?"

[See the conference paper by Mr. Zahniser, "How Much Wilderness Can We Afford to Lose?" on page 46 for the address delivered at this point in the proceedings.]

Wilderness and Accessibility

Discussion Chairman: Luther T. Hoffman, Regional Administrator, Bureau of Land Management

Introductory Speaker: P. A. Thompson (formerly Regional Forester, United States Forest Service)

Mr. Thompson pointed out that the discussion thus far had kept returning to protection and preservation of existing wilderness, and quoted an earlier Sierra Club statement: "Bit by bit the wilderness succumbs to those influences which man himself, fleeing from the cities, brings with him, to the detriment of the sanctuary." It was his belief that if use endangers the wilderness, then that use must be regulated. Possibly the wilderness is too accessible, therefore used by ununderstanding people who create pressures for the ultimate harm of the wilderness. The dilemma is that if wilderness is inaccessible, there is no use; if it is too accessible, there is no wilderness. Somewhere between must be the limits for judging the proper number of trails, campgrounds, and other developments.

A highway right up to the boundary of a wilderness could be as harmful as a road through it, for it would provide too easy access to people whose interest is not in the wilderness itself but merely in getting out, and who consider it necessary to carry with them much of their normal surroundings. These people then take in too many horses and mules, with destructive effect on the meadows. We must consider regulations for the protection of the meadows—perhaps regulation of the type and quantity of stock, perhaps insistence on keeping to certain trails and bringing in feed, perhaps barring stock entirely from some portions of the wilderness. He favors leaving some parts trailless. Experienced backpackers with proper wilderness manners do no harm—but there is no way of "running people through a sieve and having only the good-mannered ones come out," and even here regulations may become necessary. Education is still important, and legislation is not the only answer; "You can't legislate morality."

Walter Starr (Sierra Club) agreed with Mr. Thompson that plans for new trail building should be carefully scrutinized; Richard Leonard added that it was Starr who had originated a resolution by the Sierra Club calling for a master plan for trails in the Sierra, and that we must try to come to some decision, perhaps as a result of such a conference as this, on how much accessibility is desirable or safe.

Sam Davis (Packers' Association) agreed that not even packers would suggest that every spot be made accessible by trail, but commented that people who try to defend the wilderness don't themselves go there and that he believed 1,000 people go to Rae Lakes for every one into the Monarch Divide area. He felt strongly that too many people destroy wilderness; he does not approve of too-large parties.

John W. Spencer (Izaak Walton League) called for a sensible trail plan to provide a middle-ground solution between a dusty alley and innumerable spur trails into every corner. He advocated relying on judgment of the local administrator rather than rigid regulations.

Eivind Scoyen (National Park Service) said he was not proceeding on the assumption that we are to discourage use of wilderness areas, and wants to work out a good plan of distribution and development. He felt that some cabins (snow-survey cabins, outpost camps, and the like) may be needed to make portions of the wilderness accessible to enough people, although he expressed himself as personally opposed to structures in the back country. He is opposed to "destinations" in the back country.

Jack Barnard (Federation of Western Outdoor Clubs) said that how people feel about wilderness determines how they use it; education is therefore important, so that they may use wilderness without using it up.

Frederick Law Olmsted (Wilderness Society, American Planning and Civic Association) asked that wilderness organizations consider study of the dominant functions of particular wilderness areas, which may be different, even antagonistic. Some areas may be important primarily for ecological studies (which would be made ideally by an observer suspended from a nondisturbing sky hook!); at the other end of the scale, for providing personally gratifying activities. "We lump these wilderness values together too loosely; . . . they're as varied as economic values." Studies and classifications would help in protection.

Understanding the Wilderness Point of View

Discussion Chairman: William J. Losh, Owner, Lee and Losh, Public Relations

Introductory Speaker: Lowell Sumner, Biologist, Region 4, National Park Service

Mr. Losh, before introducing the speaker, pointed out that we must first try to define what *we* understand by wilderness; then, when we can agree, must seek the support of the public for this concept.

Mr. Sumner emphasized the necessity for agreement on a definition; our own discussions among ourselves illustrate the diversity of individual concepts; there is danger that our debates may prejudice the needed public support of the remaining wilderness, which is such a small portion of our total area.

Size is important; there is a dangerous tendency to whittle away a preserve, through compromises, until the area is too small to retain its original attributes. We must not divert so much energy to small preserves that we lose sight of the defense of those that are still large enough to encompass what we are trying to preserve (including a year-round habitat for characteristic species). Already too many of our preserves are but "remnant" areas, and cannot provide subsistence for native species.

The quality of sanctuary is important, and we must consider how far we can invade it without loss of wilderness. For example, if wildlife management is carried on to the point where reduction in predators necessitates slaughtering of deer, do we have wilderness? Who today has the chance to know marten, wolverine, fisher, otter? An unmeddled-with area in which nature can take its course is of high value for scientific study as well as aesthetically.

He said we need not take to heart the charges of selfishness: the less than one per cent of our land that is in wilderness is largely without value for farming, lumbering, or other commercial production. To the argument that a motorist has equal rights of access, we can point out that the other 99 per cent is acccessible; further, how selfish, how undemocratic to try to take away from the minority who appreciate it their fraction of one per cent of unproductive land! Administration costs (of the land that is ideally left alone!) are too low to be a factor; to keep

the total acreage of wilderness remaining in our country probably costs each person about ten cents a year. "When our nation is so poverty-stricken that we can't afford to fill our gas tanks or go to the movies, then it is time to think about using up that remnant."

Hubert Jenkins (Sacramento College) reemphasized Mr. Olmsted's point that we should define the different kinds of wilderness, and make sure that newcomers to the conservation field understand wilderness needs, lest continuing redefinition result in surrender of an inch or two at a time until there is nothing left.

Howard Zahniser thought the use of the same word, "wilderness," for both recreational and land-management problems (which are not the same) must be confusing; but even if we are not yet ready to restrict ourselves with too strict a definition, we must not lose sight of the necessity of preserving primeval environment, freedom from mechanization, a sense of remoteness, and those characteristics that impress visitors with their relationship to nature.

John W. Spencer pointed out that although people who are mindful of the small amount of timber or food resources in withdrawn areas may think of them as an economic loss, their high watershed value alone would justify withholding them from all other interfering uses. "We conservationists don't have to apologize to anybody for defending these high-mountain areas!"

One conference member raised the question of "cropping" wilderness resources. Mr. Spencer insisted that the best management was letting it alone. Another thought that too much withdrawal might cut down on water for power, but Mr. Spencer pointed out that in our mountain wilderness, although the water-*gathering* capacity is high, storage potentialities are fortunately higher outside the wilderness areas.

Mr. Sumner agreed that "cropping" was one of the proper uses of wilderness *if* we can properly define it as recreation use; harvesting, *outside* the wilderness, of a wildlife overflow; and gathering of scientific data.

The original protestant said he was particularly interested in the possible harvesting of water and timber. Eivind Scoyen asked, "Are you asking if we should permit managed grazing, lumbering, water, and power development in the wilderness? . . . The answer is 'No!' "

Byron Beattie suggested we tend to spend too much time talking among ourselves, and that we should emphasize educating others.

Lois Crisler (Wilderness Society) insisted that for our definition scenery with a feeling of remoteness is not enough—it must also be the home of life appropriate to the environment (though we need not see the animals themselves if there is evidence of their life).

Wilderness Administration: How Can We Plan for Maximum Use with Minimum Damage?

Discussion Chairman: John W. Spencer, Director, Izaak Walton League (formerly Regional Forester, United States Forest Service)

Introductory Speaker: Carl P. Russell, Superintendent, Yosemite National Park

Dr. Russell stated that although Yosemite Valley itself is not a part of the back country, what happens there can affect the back country and may be illustrative. He cited park purposes and the need for coördination and coöperation in carrying them out, including a master plan for all recreational areas within a given region.

He quoted Zahniser's statement that "we have an inborn tendency to make over the wilderness rather than to adapt ourselves to wilderness conditions" and that "the human values of wilderness are most important to us." He agreed that

authenticity of a wilderness experience may be more important than duration, but disagreed that the need for rationing (as suggested in Zahniser's "3 R's" for wilderness) was a half century away; he said he had then on his desk an order to extend to Tuolumne Meadows the limitation of camper's stay as already in effect in the Valley and at Wawona. He felt that there was increasing need for regulation of the use of the high country surrounding Tuolumne Meadows, for as use of the back country increases, so does the danger of losing the very thing that brings people to it. Enforcement of regulations becomes more and more difficult as use is doubled while staff is cut down. The need for education becomes increasingly acute; he feels that issuance of a campfire permit provides a good opportunity for educational contact with the public.

He also cited a newspaper editorial bemoaning the loss of Hetch Hetchy, which would have provided badly needed additional camping sites, and reminded the audience "to be safe, resist the beginnings." He pointed out that Yosemite's troubles began a hundred years ago.

In ensuing discussion, several pleaded for relaxation of the existing system whereby campers obtaining campfire permits for back-country trips in Yosemite National Park have been definitely told to use certain designated campsites; many felt that although issuance of a campfire permit provides valuable opportunity for contact and education, designating campsites constitutes a degree of regimentation that is undesirable for the visitor and that gives rise to increased administrative difficulties.

A number of Conference members referred to the need for increased education of campers; it was generally agreed that sufficient education would greatly relieve the damage the wilderness is now suffering and would ease the administrative difficulties, and ways are being sought to bring about effective education.

THE THIRD BIENNIAL WILDERNESS CONFERENCE, May 15–16, 1953

Richard M. Leonard, President of the Sierra Club, opened the Conference.

General Chairman *John W. Spencer,* retired regional forester, said that the idea of wilderness areas grew from a recognition of the relationship between wilderness, human use, and spiritual values. The wilderness areas we have today are a pathetically small part of our great public domain set aside for the things that mean so much to all of us. There was too little opposition to exploitation of the areas that should have been preserved, and places that could have been made wilderness areas forty years ago are no longer suitable. The crisis of today is to hold what we have. Legislation already in Congress would destroy the whole idea of wilderness, and lead to destruction of the sanctity of the national parks. That such legislation can be considered indicates a lack of land-use understanding.

Mr. Spencer said that a weakness of the conservation groups was that they pass a flock of resolutions and go away feeling like a Boy Scout with a sense of duty done. They must disseminate the information to more and more people. He hoped that out of the Conference could come clear-cut and concise undertakings for each organization concerned.

The Wilderness Idea: How Can We Maintain It?

Discussion Chairman: Clare W. Hendee, Regional Forester, Region 5, United States Forest Service

Panel Members: Millard M. Barnum, Assistant Regional Forester, Region 5, United States Forest Service; Father John S. Duryea, Director, Newman Club, San Jose State College; William J. Losh, Lee & Losh, Public Relations; Lawrence C. Merriam, Regional Director, Region 4, National Park Service; Bestor Robinson, Member, Advisory Committee to Secretary of the Interior; Lyle F. Watts, Secretary, Oregon Division, Izaak Walton League

Mr. Robinson declared that we were getting fine public support for the wilderness idea and were no longer on the defensive, but we could not let the team disband. He believed that the mechanism of zoning could be used to enforce wilderness protection.

He thought we had reached agreement on the desirability of preserving wilderness, but not on what activities were permissible within the preserves. There seemed to be two contradictory philosophies underlying wilderness preservation —that the sole function of wilderness is to contribute to the inspiration and well-

being of people, and that wilderness itself has a personality—a soul—and should be preserved for its own sake. Mr. Robinson favored the first. We must consider that man is the worst predator that wilderness has to contend with. He apparently wants a wilderness area just as natural as he can have it to enjoy as a civilized human being, but is only semi-civilized in his living habits in it. Game trails were natural, but man's trails were the result of dynamite. We need several degrees of wilderness, some with no trails, some we might call Class 2 wilderness. Horses and mules, generally considered suitable, can themselves be destructive of wilderness. Is there a way of bringing people into the wilderness without horses? Would the helicopter result in less damage? What about protection against fire and insects? What about sanitation? What about shelter? To what extent are concealed but permanent structures appropriate to the enjoyment and safety of people visiting the wilderness? If we are primarily interested in wilderness for its contribution to human beings, to what extent is management justifiable to increase use, and to what extent should we try to develop wilderness areas with gateways and buffer zones? We have to solve these problems before we can enact provisions intended for the protection of wilderness.

Howard Zahniser (Wilderness Society) said that Mr. Robinson's comments presented a quandary: Are we going to have to manage the wilderness for human beings? He said, "We are concerned with ourselves as human beings, and yet we are concerned with the wilderness because of its importance to us as human beings. We are concerned with its 'purity' in certain places because we are convinced that our needs as human beings are concerned with access to a part of the wilderness from which we came." He stated that it is beyond our ability to evaluate our own importance as human beings in comparison with that of wilderness for its own sake. We must so treat wilderness that we cannot be accused of having placed our own importance too highly above it.

Dr. Olaus J. Murie (Wilderness Society) pointed out that there was need at public hearings, for expressions from those who would have wilderness protection continued or increased as well as from those who would have it broken down. Usually it was groups wishing to exploit wilderness for their own purposes who express themselves most vigorously to public officials.

He was convinced that a philosophy is growing that we don't want to get too far away from our origins. Even in gardens around homes we were taking a step in the right direction—that is, toward an appreciation of natural things.

Dr. Murie did not feel that we could formulate a definition of wilderness at this time that would be universally satisfactory—perhaps not for several generations yet. There was, though, a growing feeling—as expressed in recent meetings of the International Union for the Protection of Nature, in Venezuela—that we should consider the "rights of nature." There was need for some sort of ethic for the conservation of natural things.

David Brower (Sierra Club) felt we did need a wilderness definition that in itself would help protect wilderness. He cited Mr. Livermore's definition of wilderness as an area big enough that in crossing it one has to camp out overnight, and attractive enough that one would want to camp in it. He himself felt that it might be well expressed if we talked about an area in which there was no evidence of man's coming, being there, or having been there. He commented on a recent statement by Chief Forester McArdle that the definition of wilderness must be strengthened so that our protection of it may be strengthened. Buffer zones and semi-wilderness should be *outside* the presently designated areas. There should be no additional use within them. Mr. Brower liked Olaus Murie's urging that we leave open the decision on whether we should have wilderness by leaving the wilderness there. We should make sure that the boundary around a wilderness was just as firm and definite as was the damage that can be done to the wilderness. If some of its features are particularly susceptible to damage, we

should be willing to limit our activities in or about them. He said that he would be satisfied never to see a condor if he knew that because of human restraint the condors still have some place to survive.

Walter Starr (Sierra Club) quoted the definition of wilderness as "an uninhabited tract of land unchanged from its natural condition," then added the qualification that people may visit the area and still leave it "uninhabited" if they leave no permanent structures or artifacts. He emphasized that dams or roads definitely violate the wilderness concept (as also would too many man-made trails). Transportation in a wilderness was properly on foot or by horses on land; by canoe, rowboat, or raft on water; man-made machines had no place in wilderness. The livestock could become a problem, however, and we needed to find ways to control its use so as not to injure a wilderness area permanently.

Mr. Losh pointed out that in trying to set a definition for the use of experts we should remember that there are degrees, not only of wilderness, but also of wilderness understanding and appreciation. In going to the public for help in preserving a wilderness area we needed some ranking of areas, so that the general public could understand something about the "Big League wilderness" that we were trying to have preserved.

Mr. Zahniser referred to the question, "Where does wilderness begin and end?" and answered, "With man." The concept of wilderness is something man has thought of; its values are human values. It may be ended only as a result of something man has done to it. The degrees of wilderness we preserve depend on what man is *not* effective in modifying. A definition might be "an area so little modified by human influence and activity that when we are within it we are more aware of other living things than of other men and of what we as men have done."

Mr. Robinson asked, "What about a mountain meadow that is being badly eroded? Shall we let it go on eroding, or should it be managed to check erosion?" Mr. Zahniser said, "If it is a meadow for display within a national park, yes, we should manage it. But if it is being preserved as a natural thing and the process that is going on is natural, then we should not manage it."

Fred M. Packard (National Parks Association) emphasized that the quality of isolation was one of the important things to preserve in a wilderness. Any evidence of mechanization was therefore an intrusion.

Father Duryea spoke of man's relation to wilderness as that of a trustee of resources whose aesthetic values are as important as the economic ones. Man learns independence, self-reliance, and spiritual integrity from wilderness. It is pleasurable, uplifting, and necessary to man in a democracy. Man has a chance both to meditate in wilderness and to develop a social sense of responsibility there. Wilderness policy is a type of social self-discipline.

In discussion of the attempt to evaluate wilderness in economic terms, the general conclusions were that it is impossible to do so and dangerous to try to. Dr. Harold Crowe (Sierra Club) pointed out that a doctor's fee did not represent the value of the service he performed in saving a person's life. *John Zivnuska* (University of California) pointed out that a forest economist must learn to put an evaluation on things, but that an economic value is only a market value. It does not express the true worth of a thing, but it may be a measure of the people's willingness to forego the economic exploitation of an area. *Joe Penfold* (Izaak Walton League) emphasized that the economic value of a thing does not necessarily express its worth. "If we go to a symphony, whether we hear it from a box or from standing room in the gallery, it is the same symphony we hear." He extended his illustration: If a symphony orchestra should shut down temporarily for lack of financial support, it would be able to resume later. But we cannot apply that to natural assets such as Dinosaur National Monument; if that were once flooded we could never restore it.

Mr. Packard stated that although intangible values of wilderness cannot be measured in dollars we often try to convince Congressmen or administrators who

do think in dollar terms. He was encouraged that many people support wilderness, not on a dollar basis, but for its own sake. He cited recent hearings on Buttle Lake in Canada, and the Gila wilderness in the Southwest—where local people could have profited greatly by exploitation of the areas concerned yet came out strongly for preservation of the wilderness.

Mr. Losh brought up the point that the scarcity value of the commodity should be considered. In our wilderness resources we are down to a small fraction of our land area. If we point out to the American people that this is all we have and we will never have more, it may help. A scarcity value is an economic value.

Eivind T. Scoyen (Sequoia and Kings Canyon National Parks) said that at the going price for timber the General Sherman Tree was probably worth $27,500. If it were put up for sale, the buyer probably wouldn't cut it down—he would put a fence around it and charge $1 per person to see it. But, says Scoyen, "We'd rather have the people who view it evaluate it on a spiritual basis."

Harry E. Radcliffe (American Nature Association) pointed out that in older civilizations spiritual values were recognized to transcend economic values, and cited various oriental philosophies. Shintoism is based entirely on nature and the out-of-doors while its devotees are struggling for a living on a tiny island. We should not be apologetic about our spiritual motivation.

Mr. Packard added that Japan has a magnificent park system, recently established, in spite of the desperate shortage of arable land in that country.

Raymond Hoyt (National Park Service) said that evaluation should be simple for an engineer: "If we assume that the value of a certain resource is $x, and multiply that by an infinite number of years of enjoyment, then its value is infinite!"

Mr. Merriam spoke of one of the greatest threats to the parks—privately owned land within their boundaries. The inholdings still amount to about 20 or 30 million dollars' worth of property, and there are very few appropriations made by Congress for their acquisition. They pose a danger because there is no present means of controlling activities on these private lands.

Mr. Watts stated that we should try to foresee the values of wilderness for people of the future, not just today's economics. The values we are trying to preserve are beyond dollars and beyond measure. He thought the four most serious threats to wilderness lands came from (a) outmoded mining laws, (b) private lands within the boundaries, (c) desire to impound water within the areas, and (d) the strength of commercial demand as against public ownership. The owner of private land has legal right of egress and ingress and can build a road across public land; removal of private ownership is one of the most urgent problems we have. The construction of dams that are themselves damaging to wilderness values also involves the construction of roads, which cause further great damage. Potential commercial value of wilderness lands poses a threat: Whenever there is lumber, a grazing preference, or some other exploitable resource making the land attractive to private ownership, tremendous pressures build up against the maintenance of wilderness boundaries.

Mr. Barnum and *Mr. Hendee* told of some progress made in California in revising wilderness area boundaries so as to acquire privately held lands, but implied that lack of funds prevents some highly desirable acquisitions.

Dr. Murie referred to many discussions that had been held on "defensible lines" for wilderness area boundaries, and pointed out that if we always tried to withdraw them to where there would be no conflict, we would have very little wilderness left.

Mr. Robinson emphasized the importance of one particular mechanism—an aroused protection, and of the need for hearings on changes in Park Service master plans in relation to wilderness areas. It was subsequently brought out that often the notice of a public hearing is not itself made public—or given far enough ahead of time.

Several persons—speaking as administrators or as conservation leaders—spoke of the value of public hearings (a) as an educational tool, (b) as a means of strengthening protection of wilderness or other designated areas, (c) in assuring full discussion of an issue (rather than permitting one-sided pressure) and thereby permitting an administrator to reach a sound decision.

Some concern was expressed that we might tolerate certain incompatible uses of wilderness areas because we did not recognize soon enough that they would amount eventually to damaging uses. *Dr. Murie* cited several practices in national parks whose effects we could not immediately judge.

Mr. Losh returned to the necessity of helping the public to understand so that we may receive help from the public. Too much of what we talk about is incomprehensible to people who have not themselves experienced the kind of wilderness we have in mind. We must place wilderness in perspective with all recreation. Emphasis on the scarcity value of wilderness—a part of "vanishing America"—may encourage the general public's interest in protecting it. We must bring the problems home to the people, to opinion makers, and to various media of mass circulation. He referred also to the charge of "discrimination" in wilderness use, and to the necessity of finding satisfactory answers to that. He favored all devices to bring out ideas, including public hearings, and said, "You never know what new type of support you are going to get from unexpected new sources." There are a great many natural allies whom we have not yet drawn into support of the wilderness.

Mr. Robinson again urged that we encourage a great use of areas which may be called semi-wilderness and which lie contiguous to actual wilderness areas. People experiencing something that approaches wilderness would have a better understanding of the value of actual wilderness and would be more prepared to defend it. Several persons cautioned, however, that these semi-wilderness areas or recreation strips must be *outside* the present wilderness boundaries, or they would themselves diminish the very wilderness that they were supposed to be aiding people to understand and save. There were also those who expressed fear that too successful a job of "selling" wilderness use, if not accompanied by wilderness understanding, would result in serious damage through overcrowding and uneducated use.

Mr. Penfold suggested another way of looking at zoning and wilderness-area use. He coined the word "isoprims," lines on a map connecting points of equally primitive quality. On such a map a true wilderness would be represented as the center around which concentric lines spread out, in increasingly urbanized areas, right out to wherever we happen to live—and where we live is where wilderness starts. At the centers of purely primitive conditions we would observe zoning that has just happened because of geographic or other circumstances rather than because of planning. It behooved us to zone according to prior determination, and we must look at least 50 to 100 years ahead in doing so.

Fred Gunsky (Sierra Club) suggested combining remarks of several speakers to build up a possible public-relations attempt. He doubted that we could ever sell the idea of preserving pure wilderness, but thought we may find support for zoned use. Although relatively few people penetrate to the innermost heart of wilderness, there are many who use and appreciate the outer rings of it, and all their defensive activities combined could be of inestimable value to our work.

Byron Beattie (Forest Service) commented on the strength of our combined organizations, both public and private, and stated his belief that a part of that strength was in the concept of multiple use. A group such as at this Conference might be too busy thinking of pure wilderness to remember about other lands also valuable for their natural appeal.

Leo Gallagher (The Mountaineers) believed that the wilderness idea could be sold a lot more easily than we think. Our best approach would be to put our ideas across to youth. In this connection he felt we were not giving sufficient support to Scouting and similar movements, and urged all who were concerned

for wilderness preservation to devote more time to the education of leaders as well as of boys and girls.

Francis P. Farquhar (California Academy of Sciences) told of Secretary of the Interior John Barton Payne, who had been hearing arguments—based on dollars—in favor of construction of a dam that would back water into a national park area. A Senator implored him, "You wouldn't deny the bread from the mouths of these millions of people here, would you?" Payne's answer was, "Senator, there is a heap more to living than three meals a day."

Mr. Zahniser said that progress was being made toward national wilderness legislation.

The Wilderness We Have: How Can We Use It and Not Lose It?

Discussion Chairman: Joseph W. Penfold, Western Representative, Izaak Walton League

Panel Members: Byron B. Beattie, Forest Supervisor, Sierra National Forest; Harold C. Bradley, Member of Board of Directors, Sierra Club; Herbert London, Secretary, High Sierra Packers' Association, Eastern Unit; Eivind T. Scoyen, Superintendent, Sequoia and Kings Canyon National Parks

Mr. Beattie reminded the Conference that inevitably in the management of wilderness we move from philosophical and spiritual considerations to the cold realities of administration. Among these cold realities are use figures. For example: the Mount Dana-Minarets area in 1941 had 19,000 man-days of use. In 1952 that had increased to 138,000 man-days. This sevenfold increase is representative of what has happened in all national forest areas. He outlined advances in inter-service coöperation, on-the-ground study by administrative officials, camp clean-up and sanitation, and in establishing a sense of public responsibility by the users of wilderness areas. He described a management plan that will be tried on 32,000 acres of the Bear Creek drainage to develop and demonstrate practices that may later be extended to other regions. The plan includes provision for a roving patrol.

Mr. Scoyen felt there has been quite a change since the 1949 Conference, when pessimism about wilderness preservation seemed to prevail. The discussion pointed to improvement. He said he had never approached wilderness preservation on the basis that we discourage use but how to encourage use *without damage*. He felt that people could be taught to use wilderness more carefully, and that we could therefore get more people into it without causing damage. He pointed out that in appropriations, the Park Service was still losing ground. Work done a number of years ago by the CCC, the WPA, etc., was now falling apart. Bridges must be rebuilt, trails must be reworked. Protective maintenance could not be carried out with the small appropriations presently available.

Mr. London said that the packers as a group probably use the forests and parks more than anybody else, and he spoke of their concern over increased use and its effect on the character of the country. He praised Harold Bradley's clean-up campaign and outlined assistance given to the program by packers; he also mentioned the difficulty the professional has in influencing some clients. He felt that backpackers, among the most numerous users of the wilderness, at times were the worst offenders. Packers cannot reach them with their educational efforts, and he hoped that Sierra Club and other such groups could. He reiterated pleas made in earlier conferences for keeping parties of travelers in the wilderness as small as possible so as to minimize the impact on wilderness; for greater continuity of Forest Service personnel in the back country; and

for elimination of fenced pastures and the many thousands of feet of barbed wire that one still could find up and down the Sierra in favor of drift fences. He also objected to helicopters, pointing out that although they may not trample any grass or make any trail dust, they certainly do disturb wilderness. Although the noise and loss of isolation are temporary effects, there are serious permanent effects of having too many aircraft flying over a wilderness area. He also cited certain roadless areas seriously changed in character once aircraft landing strips were built there. Although a flier, he felt that the airplane does not contribute to the values that people go into wilderness for, and that their use—even on the edges of wilderness—was inappropriate.

Professor Bradley reported advances in research, education, and indoctrination toward maintaining wilderness as we like it by keeping necessary management out of sight. The results of experimentally accelerated weathering of burned and unburned tin cans were demonstrated, and photographs were exhibited to show in convincing manner the importance of packing noncombustible trash out of the mountains. He said, "It is a backlog of public opinion and understanding that is really going to help in solving wilderness problems. The problems are not all outside threats such as the plans of the Bureau of Reclamation to invade Dinosaur National Monument; there are problems of internal deterioration and loss." He felt that packers and rangers occupy key positions in the front-line defense against these losses. Whereas one could distribute printed matter in a city without reaching very many wilderness users, the packers were in a unique position to help people to understand the problems of keeping a clean and unharmed camp.

Dr. Murie, commenting on the use of aircraft in wilderness or roadless areas, cited the danger in taking parties in on short excursions, depleting lakes in which fishing should be continuously available for the people who come seldom and slowly. He urged that wilderness should continue to be an experience—something to come at gradually—and not just a view obtained on a quick trip in and out. People want to have the experience of getting there themselves.

Mr. Leonard talked of the types of conveniences that could suitably be put in wilderness areas. He urged going slow in making improvements. He took exception to a proposal to concentrate the use in wilderness areas into rather small designated campsites. That would necessitate the construction of sanitary facilities, built fireplaces, and other marks of concentrated use, which would not be necessary if people were scattered more widely. He expressed admiration of the philosophy prevailing in Sequoia and Kings Canyon National Parks, where the campers were told, "spread yourselves thin." Mr. Leonard recommended keeping the wilderness wild by not making it like all the roadside camps.

Mr. Brower commended the idea that management be kept out of sight. He pointed out that some of the problems that plague park administrators in the areas of concentrated use were also creeping in in lesser degree right into the middle of wilderness. For example, snow-survey cabins, if visible from a trail or a widely used area, are definite violations of wilderness atmosphere. He expressed the hope that additional rangers put on duty in the back country would be roving patrolmen, having the excellent effect of the work of "Colonel Benson, Rover" likely to turn up at anybody's camp at any time. He felt that if back-country rangers were stationed in cabins or established camps, their effectiveness as patrolmen would be greatly diminished—wilderness visitors inclined to carelessness would be on their good behavior only in the vicinity of the established cabin or camp.

H. Frank Evans (Wilderness Trail Trips, Glacier National Park) deplored an unsolved litter problem in Glacier National Park in which, he reported, long-time accumulations of cans and junk in the vicinity of chalets had not been removed. He also expressed concern lest pack-horse supply to some of the chalets be supplanted by small caterpillar tractors. He felt that the wilderness sections of the

park were not receiving sufficient appreciative use, and that where there is a good road it is easy for people to go through the park too fast to get its values. He questioned announced plans to spend $1,500,000 to improve the road for bringing out logs from infected spruce trees then being cut; he suggested using a better road on the other side of the river and abandoning the old one so that the area it traverses could return to a wilder condition. Local people regard that area as a local rather than as a national resource and are not aware of the problems of the type being discussed at this conference.

Mr. London suggested that if administrators of parks and forests could put a small portion of their staffs into the back country, the packers could perhaps match the effort with stock—and possibly men—in an effort to clean up the worst of the back-country areas, getting them clean so that they would be kept clean by succeeding campers.

Professor Bradley told of his gratification in finding a ranger and his ten-year-old son cleaning up camps in the back country of Yosemite the previous summer; Superintendent Scoyen reported that he and another ranger had undertaken a project at Rae Lake in 1940 wherein they packed out 121 packloads of cans. He emphasized that the people who use the wilderness must themselves learn to do something about the situation. *Mr. Scoyen* responded, "We can get a lot more done in regions where there are militant groups that both holler and help." *Mr. Leonard* regretted the reported air drop to Evolution Lake and the use of small tractors, which he considered a dangerous precedent.

Mr. Zahniser offered a $50 prize for the photograph showing the largest number of cans cleaned up and packed out of the mountains.

Alaska's Arctic Wilderness: What Can We Do Toward Its Protection?

Discussion Chairman: Francis P. Farquhar, President, California Academy of Sciences

Panel Members: George E. Gates, Chief, Alaska Geology Branch, U.S. Geological Survey; A. Starker Leopold, Associate Professor of Zoology University of California; Olaus J. Murie, President, The Wilderness Society; Robert Rausch, Chief, Animal-Borne Disease Branch; Lowell Sumner, Biologist, Region 4, National Park Service; Ira L. Wiggins, Scientific Director, Arctic Research Laboratory (at Point Barrow, Alaska)

Mr. Farquhar said that at the time Yellowstone National Park was established the idea was considered preposterous that the frontier would ever disappear. Few could understand the wish to establish a reservoir of the supposedly inexhaustible wilderness resource. In Alaska we have the same opportunity as existed in 1872 at Yellowstone, to establish now a reserve to protect the qualities of wilderness only too rapidly disappearing in the face of accelerated development.

The panel then described an area unfamiliar to most participants, the land lying in the northeast corner of Alaska, extending from the Canadian border westward about 300 miles and from the shore of the Arctic Ocean southward about 100 miles along the tundra and the rising plateau to the crest of the Brooks Range and slightly to its south. In the area extensive observations had been made through two summers under the auspices of the Arctic Research Laboratory. The members of the panel had participated in or followed the study.

Mr. Gates described the Brooks Range and the plateau north of it. It has mineral potential. There is oil in the northwestern portion, but the deposits are not known to be extensive. Other mineral resources are not believed to be significant.

Dr. Rausch told how increasing human population and attendant development are adversely affecting the wildlife once common even near the centers of settlement. With the accelerated growth of Alaskan cities and a spreading outward from their centers into the rural areas, the old frontier is gone. "It is no safer now to hunt moose near Anchorage than to hunt deer in Wisconsin," he said. The decrease in the bear population is particularly noticeable. He deplored the general campaign carried on by the Fish and Wildlife Service to kill off predatory species through a variety of means including poison, cyanide gun, and direct shooting. He feared that this campaign would go too far and urged different wildlife policies. Recognizing the need for modification of animal population in the vicinity of built-up areas, he strongly favored a preserve for wildlife large enough that the fascinating conditions once prevalent all over Alaska could still be preserved in one part of it.

Dr. Wiggins said changes are inevitable, but some other changes could be prevented in the northeastern portion of Alaska if it could be set aside as a wilderness preserve. Rapid and lasting changes were being made upon the tundra surrounding Point Barrow, especially by man's mechanized transportation. The tundra is criss-crossed by one network laid over another of weasel trails and cat tracks in all directions from Point Barrow. A tremendous amount of junk had accumulated around the camp there since 1946, and along the weasel and cat trails are piles of abandoned gasoline drums. There is evidence of human interference all the way from Point Barrow to the Brooks Range. On the tundra there is no growth to hide anything, and disintegration is exceedingly slow. Whatever man discards there stays there.

He pointed out that a reserve such as proposed would be a permanent laboratory for studying Arctic flora and fauna. Within this area qualified and selected parties could study wildlife trends, influences, and interrelationships, and from such a study gain scientific bases for whatever control measures must be introduced in other parts of the territory. Then the decision on whether or not wolves were to be poisoned could be made on the basis of scientific study, not simply because someone had seen a wolf pull down a caribou. Because the northern (or seaward) slopes of the Brooks Range are effectively blocked off from the rest of the territory by the crest of the range, that area makes an excellent laboratory for the study of wildlife population dynamics.

Further scientific fields which could be profitably studied in that undisturbed area are archeology, paleontology, and paleobotany, for each of which there are extremely interesting but so far only slightly studied research sites.

Dr. Murie referred to his own experiences, in which he had spent a winter in the Brooks Range with his brother Adolph in 1923, and with his wife the next year. He also spoke of a trip he had made with "a beginning family" in an area westward of the proposed study area. He had found the region of particular interest because of the low timberline. He had been impressed with the mountain sheep. He saw the mountains of the Brooks Range only in winter but found them extremely beautiful. He pointed out that the tundra is not a flat and uninteresting region, but has a rich and unique life—especially in the spring—that is unlike anything anywhere else. Within our national system of reserves we have such unique areas as Big Bend, the Joshua Tree National Monument, the High Sierra Wilderness area, etc., but nowhere else is anything like the Arctic tundra that stretches on into the Arctic mountains. Having sampled the rich resources of this territory, he would enthusiastically urge dedication of a part of it as a wilderness preserve. It would be a wonderful thing if we could have some sanctuary for Arctic beauty. He urged further that any area set aside be big enough to have that one thing essential in the Arctic—spaciousness.

Mr. Sumner indicated how the tentative boundary for the proposed study area had come to be drawn. First, it was taking in an area that nobody else seemed to want. Next, it was marking out an area that was relatively undisturbed ecologically, from the seashore to the crest of the Brooks Range and then partway down into the timber on the other side. The line was drawn to exclude habitations on the

south and west, then jogged west to include the highest Arctic mountains, Mounts Chamberlin and Michaelson.

Some interest was being shown in a continuation of the reserve on the Canadian side of the boundary.

Dr. Leopold warned of educational and political implications. He spoke of resistance and resentment against increased Federal ownership of lands in Alaska, with so much of the southeastern portion under Forest Service, and where there are large fish and wildlife reserves, a national park, four national monuments (two of which are large), and other miscellaneous federally held properties. In this frontier country the people were feeling constrained. He cautioned that there is great need for educating the people in general to the value of wilderness for its own sake—a value that transcends other uses and economic values. Interest in establishment of an Arctic wilderness is limited now to the very few who have studied and know the area, and to conservation organizations that recognize the value of setting aside wilderness before it is too late. These leaders will need tremendous public support before they can go further in any such project as is proposed. Much more information, education, and persuasion is needed.

Mr. Zahniser pointed out that in all Alaska the number of people is only as great as the population of Berkeley. What happens to the land there is not a matter of local concern but of national concern.

Don Graeme Kelly (California Academy of Sciences) concluded the discussion of Arctic Wilderness by reading extracts from an article by Adolph Murie for the forthcoming number of *Pacific Discovery*.

Dr. Otto Kraus, Minister of the Interior for Bavaria, attending the conference as a guest of Mr. Packard, said that he saw the problems of the entire world are the same: a conflict between spiritual and economic values. The difference, he said, between his work and ours is that we have a large country; he has limited space. In the United States we have about 50 people to the square mile; in West Germany the concentration is about 300 to the square mile, and his work therefore is much harder. He listed among the greatest threats to the natural scene in Bavaria such things as cable railways or funiculars in the mountains, the problem of cottages all over lakeshores, and the changes wrought or contemplated by hydroelectric development. They have no extensive wilderness parks or reserves, but they do have nature monuments (which are individual trees, small groups of rocks, etc.) and nature reserves (which are somewhat like our national parks but not fully protected, as grazing and lumbering are permitted within them). An important concept is the protection of landscape against bad development—comparable perhaps to zoning here. Areas under such landscape protection are not necessarily all public. They are often private lands—over which the government, however, has superior jurisdiction through scenic easements if the land should be protected for science or for the commonwealth. A continued effort is made to protect the entire landscape against overuse or bad use. Dr. Kraus said: "A sound country inside is beautiful outside." And the effort is continued to maintain biological soundness.

Trash has not so far been a problem along roadsides. Along lakeshores and picnic areas, however, there is beginning to be a problem of Monday-morning litter. He feels that the tremendously increased travel pressure is responsible. Of their general conservation efforts, he said: "We try to educate our young people in due reverence to Creation by radio and through newspapers."

THE FOURTH BIENNIAL WILDERNESS CONFERENCE, March 18–19, 1955

Richard M. Leonard, President of the Sierra Club, called the conference to order, and spoke briefly of the history of the three preceding Biennial Wilderness Conferences.

The Rev. James Comfort Smith (Pastor, St. John's Presbyterian Church, Berkeley, California) asked the conferees to consider what are the most important non-economic values of wilderness which are more important to each person than anything else. He suggested that they had to do with a spiritual drive or necessity of each of us—something a man must have if he is to be a man. He spoke of the effect on character, steadfastness, humor, and a sense of liberty and freedom of the wilderness experience. Wilderness should be used so as to leave it untrammeled for those who come after, and people in the mass must be awakened to what they stand to lose if wilderness areas are not protected. We are entrusted with an overall stewardship of wilderness—something that does not belong to us, but to God.

Mr. Leonard spoke of the arrogance of man in wanting to improve, change or develop every square foot of the earth and every tree on earth.

Dr. Bryant spoke in some detail of the gains and losses in wilderness during the years since the First Wilderness Conference. Among the *gains* he listed: nine bills to reduce boundaries of Olympic National Park were defeated; Echo Park dam stopped for the time being; Redman tunnel under Kaibab Plateau of Grand Canyon National Park to divert water from Colorado River defeated; former Secretary of Interior Oscar Chapman stopped Glacier View dam project which would have damaged Glacier National Park, and Sun Butte reservoir in Bob Marshall Wilderness Area; the Secretary of the Interior ordered that no studies of projects in national parks or monuments or dedicated wilderness areas of national forests may go forward without specific authorization by the Secretary; City of Los Angeles canceled application for a series of five dams in Kings Canyon National Park; road threat to Joshua Tree National Monument stopped; extensive additions made to Olympic National Park; 79 wilderness, wild, and primitive areas extant in national forests; program of standardizing and stabilizing more of these areas through classification under Regulations U-1 and U-2; saving of large acreage of Ponderosa pine in Gila Wilderness Area as result of hearings; Secretary of Interior McKay's ruling against proposed Mount Rainier tramway; increasing effectiveness of clean-up campaigns in certain areas; increase in organized defenders and advocates of wilderness.

Among the *losses* Dr. Bryant listed: 289,000 acres of Joshua Tree National Monument opened to mining; Glacier Peak wild area endangered; Johnson bill to prohibit building dams in national parks and monuments died in committee; five-mile road built through the Emigrant Basin Wilderness Area for tungsten mining.

Dr. Bryant also listed some major *threats:* legislation for constructing Echo Park dam; proposed San Jacinto tramway; Wyoming's bill to buy and administer the concessions in Yellowstone National Park; mining prospectors' being able to file 20-acre claims in national forests, and the right to file claims for cinder blocks,

building stone, and other nonmetals; demand for hunting in state parks; mechanical methods of transportation such as airplanes, helicopters, jeeps, and power boats; the overriding of established policies by certain government bureaus.

In concluding, Dr. Bryant pointed to certain hopeful *trends* in public understanding including: greater consideration given in land-use policies to scientific, recreational, and wildlife values of wilderness; greater understanding that multiple use is a complicated policy and that the use of an area for all purposes may destroy it for many of the uses. He added that threats to our national parks and wilderness continue and that this necessitates continued viligance and hard work. The way in which conservation groups have learned to work together is a source of encouragement.

View of the Wilderness Guide

Discussion Chairman: Norman B. (Ike) Livermore, organizer, High Sierra Packers' Association

Panel Members: John Neubauer, Coffee Creek Ranch, Trinity Center; Arch Mahan, President, National Forest Recreation Association; Sam Davis, Bar 7 Pack Train, Sequoia-Kings

Mr. Livermore introduced the panel and pointed out that the packers' stock is apparently steadily decreasing, and that most packers supplement their income to remain solvent.

Mr. Neubauer pointed out that though we recognize the necessity of building roads, we neglect to say anything regarding the preservation of wilderness character where roads are concerned. Unused roads should be blocked off so that they can return to nature. He also suggested that all groups interested in the "back country" be consulted in this regard.

Mr. Davis reiterated that in true wilderness there cannot be roads, and went on to point out that unused roads' entrances should be eradicated by bulldozing.

Howard Zahniser (Wilderness Society) suggested that areas set aside as roadless should be mapped. He pointed out the threat of the Federal highway program to Wilderness Areas by means of truck and side roads.

Mr. Davis discussed the problem of jeeps and motor vehicles tearing up trails. One jeep causes as much damage as 100 head of horses. Though jeeps are apparently only used in marginal areas, they threaten the heart of wilderness areas. Wilderness Areas should be posted. The Forest Service watches packers with regard to cross-country travel, but the Service is not so vigilant with regard to misuse of access roads and jeep travel in restricted areas.

Mr. R. D'Arcy Bonnet (Forest Service) quoted from a letter written to Congressman George Miller by E. L. Peterson, Acting Secretary of Agriculture, March 7, 1955:

"1. All cross-country travel by motor vehicles is prohibited in established wilderness, wild, and primitive areas. These areas will be posted where necessary with boundary signs and signs prohibiting public motor travel and these restrictions will be fully enforced.

"2. National foresters are authorized to close any areas of a national forest to cross-country motor travel, if, in their opinion, this is necessary for the prevention of erosion, the protection of forest resources, or the furtherance of other authorized national forest activities; or is required to protect or manage wildlife resources in certain areas where additional hunter and fisherman controls are believed desirable and are worked out in coöperation with the State Game Wardens.

"3. Areas so closed will be conspicuously posted with signs stating that motor travel must be confined to designated roads and cross-country travel is prohibited."

Mr. Leonard discussed a bill pending in the California Legislature. This bill has since become a law as an amendment to Section 332 of the California Fish and Game Code, relating to wilderness areas. It makes it unlawful (a misdemeanor) to use motorized transportation on water, air, or land within wilderness areas and allows violations to be handled in State courts, whereas before such violations could only be handled in Federal courts.

Mr. Mahan stated that more people need education regarding litter control.

Dr. Bryant said that many packers are now conducting anti-litter campaigns as proposed at the First Biennial Wilderness Conference.

Mr. Livermore suggested that campsites be zoned regarding the size of groups camping there and their length of stay.

View of the Wilderness Administrator: Park Wilderness Areas

Discussion Chairmen: Carl Russell, Field Naturalist, National Park Service; George Collins, Regional Chief of Coöperative Activities, National Park Service, San Francisco

Panel Members: Eivind Scoyen, Superintendent, Sequoia and Kings Canyon National Parks; John Preston, Superintendent, Yosemite National Park; Edward D. Freeland, Superintendent, Lassen Volcanic National Park; Elmer C. Aldrich, Supervisor, Conservation Education, Division of Beaches and Parks, State of California

Mr. Scoyen related the problems of conservation in general and wilderness preservation in particular to the over-all problems of waste and depletion of natural resources. Nature protection treats the effects, not the causes. We should concentrate on the prevention of waste. He also called attention to the fact that only a fraction of the area of Sequoia and Kings Canyon National Parks accommodates most of those who use the parks. The primitive and natural areas of the parks are inaccessible and "civilized man" generally does not go far from motor transport. We should consider the parks as a whole as "wilderness" and tag the exceptions, rather than classifying special portions of the parks as "wilderness." The primary objective of the National Park Service is to keep areas intact to pass on to future generations.

Mr. Preston spoke of the growing pressure of visitors to national parks in general and to Yosemite National Park in particular. Approximately a third of the total population of the United States, was expected to visit the National Park System in 1955, and about 65,000,000 in 1975. However, the great benefits of parks to the American people cannot be measured by these numbers. More than a million visitors came to Yosemite National Park in 1954, of whom 97 per cent came by auto. Three-quarters of the visitors to Yosemite came from California. If the present rate of increase continues, 455,000 vehicles will enter the park in 1970. Long-range planning points to increased day use of Yosemite with overnight accommodations provided elsewhere.

Mr. Freeland discussed "management problems" in connection with keeping wild areas wild, and to meet the needs of wilderness users who want freedom from civilization and from people while they are in the back country. He spoke of opening trails early, restricting grazing on soft ground, restricting large parties, the promotion of good outdoor manners, and the need for more high-country rangers. He also called attention to problems of fire, accidents, lost persons, sanitation,

and fish and wildlife in back country. Results depend in large measure on adequate staffs and the understanding of wilderness values.

Mr. Aldrich spoke of a number of programs and problems of the California Division of Beaches and Parks. California's beach program, which tries to give the public as much coastline as possible, is second to none in the United States. However, the Division faces many problems arising from the pressure of logging, grazing, mining, hunting, jeep tracks (which remain in deserts), and a demand for oil royalties in place of beach values.

Included in the program of the Division is: strict regulation and protection of Point Lobos; restriction of jeeps to washes, where their tracks will be obliterated; restoration of original condition of the Great Valley at the Tule Elk Reserve. It would be desirable to have a statewide planning group and regional park districts. Mr. Aldrich also discussed buffer areas and the ability of state parks to take pressure off the national parks.

John W. Spencer said hunters favor "public shooting grounds" in secondary areas and are complaining of having second-rate hunting.

Mr. Aldrich said that his division was working with the Fish and Game Department for development of "secondary areas" for hunting—areas which are substandard for other purposes.

Fred Packard (National Parks Association) spoke of the need for better coördination in planning between ideal values of national parks and entertainment values and pointed to the danger of the parks' being too concerned with entertainment values. The pressure for such values should be diverted from the national parks. Unless the people insist that parks be preserved for their primary values, the great increase in travel may turn them into high-class resorts.

Carl Russell called for going beyond nature protection to putting conservation on a mass-interest basis. Education can begin in the national parks; but the help of such mass media as the press, journals, moving pictures, and TV is also needed. It is especially important to reach youth. The public must be persuaded of the importance of the noneconomic value of the parks.

A paradox results from back-country enthusiasts promoting the use of wild areas.

George Collins said Alaska is a sample of what we faced in the continental United States fifty to sixty years ago; but the increasing use of jeeps and planes in Alaska today indicate very rapid development. Jeep tracks in north tundra country last "forever," and the intrusion of jeeps and planes is harmful to wildlife and wild values.

Clarence Rhode (U.S. Fish and Wildlife Service, Alaska) said that "development" is now the keynote in Alaska and that changes are taking place rapidly.

Mr. Scoyen expressed the belief that the vast majority of visitors to the national parks have a sincere appreciation of the parks.

View of the Wilderness Administrator: National Forest Wilderness Areas

Discussion Chairmen: John Spencer, First Vice-President, California Division, Isaak Walton League of America and former Regional Forester, Colorado-Wyoming Region, U.S. Forest Service; C. J. Olsen, Regional Forester, Utah

Panel Members: Ivan Sack, Supervisor, Toiyabe National Forest; Leon Thomas, Supervisor, Sierra National Forest; Allen Miller, Supervisor, Stanislaus National Forest; Guerdon S. Ellis, Supervisor, Eldorado National Forest

Mr. Sack stated that this session was concerned with the 79 wilderness, wild, and primitive areas in national forests and defined each of these classifications, and

called attention to the exceptions to the general rule for these areas that evidence of man shall be excluded.

Mr. Thomas spoke of wilderness areas as multiple-use areas with certain uses eliminated. Therefore they must be managed. Although mechanized transportation is prohibited in these areas, ingress and egress by road may be permitted for mining claims or other private lands within these areas. These roads may be classified as special service roads and their use limited. Airplanes and motor boats are excluded from wilderness areas but may be used for administrative and emergency purposes and in areas where their use has long been established. Fire-lookout houses and telephone lines are permitted where radio cannot be used. Where sanitary conditions require it, latrines and garbage pits may be built. Litter is a special problem in which education is required, starting at home. In the field, if we can clean up campsites, we can keep them clean. A special clean-up roving patrolman on the Sierra National Forest has helped greatly in cleaning camps and contacting the public. There is need for additional patrolmen.

Mr. Miller spoke of the major threat of mining claims in wilderness areas. He pointed to the ease with which claims may be made in national forests, including wilderness areas, and the fact that roads may be built into them. A mining claim becomes private property with all the freedom which that permits to destroy wilderness values.

In a case where a mine claimant failed to abide by the terms of his road permit, it took the Forest Service a year to get into federal court to get an injunction. Seven violations in which jeeps which have gone off roads on the Stanislaus National Forest are now being handled through normal procedures.

Mr. Sack pointed out that the pseudominer is the cause of most of the difficulties caused by mining on national forests.

Mr. Ellis spoke of trails and fires on his forest, and of the plan to add Lake of the Woods as a buffer zone in the Desolation Valley Wild Area. He also spoke of the problem of getting enough men willing to stick it out to patrol wilderness areas and thought that the low pay for this work was a factor.

John W. Spencer predicted that population will continue to increase rapidly and will bring greater pressure on the 79 wilderness areas in national forests. Somebody is always ready to develop some resource, and where natural resources are concerned too many people think only in terms of the dollar. The archaic mining laws of 1872 are the greatest threat to wilderness areas and they must be revised so that surface values are segregated from subsurface mineral values. Wilderness areas should be given legal recognition and placed on a permanent basis. They must be made inviolate against mining claims as are wildlife sanctuaries. We must raise hell against the spoliation of property that belongs to all of us.

C. J. Olsen spoke of the "illegitimate miner," and the need to take the mining of sand, gravel, pumice, and cinders from the mining laws and put them under the leasing act. At the same time he spoke of the need to separate surface values from subsurface values and of the growing problem in this respect caused by the "uranium epidemic." He further warned that the dredge miner is a coming problem and that he should be forced to replace topsoil and to plant, and be required to handle tailings to protect streams from pollution.

He also spoke of the importance of marking boundaries of wilderness areas and of having many buffer areas to protect them.

John Emerson (Regional Forester, Juneau, Alaska) referred to the feeling of many Alaskans that there are now too many national reservations in Alaska, and said they are thinking in terms of the development of Alaska through tourist travel, forestry, mining, and fishing.

Dana Abell (Sierra Club) pointed out that Byron Beattie was unable to find a man to replace his roving ranger when he left. Mr. Abell felt that men who do summer work in wilderness areas must believe in wilderness.

Arch Mahan (National Forest Recreation Association) advocated getting in touch with Congressmen to support legislation to amend mining laws.

Fred M. Packard (National Parks Association) suggested that the mining problem be solved first on national forests and spoke of bills introduced in Congress which would separate surface from subsurface rights. He urged that individuals as well as conservation organizations should write to their Senators and Congressmen in favor of such legislation.

Don Kelley (Editor, *Pacific Discovery*) called attention to the editorial in the current issue of *Pacific Discovery* by Dr. Robert C. Miller.

Mr. Leonard called attention to Senator Anderson's bills to amend the mining laws and suggested that in writing Congressmen it is better not to use numbers of bills, but rather to advocate in general terms that the principles which one favors be included in legislation.

Mr. Packard suggested that organizations refer to numbers of bills, but that individuals should refer to bills by name of sponsor, and state what the bill should do.

Mr. Sack in closing the session pointed out that the Forest Service administers laws which are approved by the people through Congress.

Dinner Program

Following the Conference Dinner, which was attended by some 360 conservationists, Lois Crisler spoke on the adventures which she and her husband, Herb Crisler, experienced during a year and a half in the wilderness of the Brooks Range in Alaska. She illustrated her talk with splendid Kodachromes, which they took on their trip, and moving pictures of their pet wolf pups in Colorado. Especially remarkable was the friendly relationship which the Crislers developed with wild wolves.

Scientific Values of Wilderness

Chairman: Prof. Harold C. Bradley

Speaker: Prof. A. Starker Leopold, Associate Professor of Zoölogy, University of California; Member of the Council, The Wilderness Society

Discussion Chairmen: Dr. Robert C. Miller, Director, California Academy of Sciences; Lowell Sumner, Biologist, National Park Service

Prof. Leopold analyzed in detail the scientific values of wilderness in relation to the over-all problem of obtaining a deeper understanding of soil and land use. The history of civilized man in his relations to the earth has been, on the whole, an almost unending sequence of mistakes, upsets, and losses. Today, in the era of science and enlightenment, we understand far more about the earth sciences than our ancestors, but still we are not beyond making many additional mistakes. A conservative plan for our future should include provision for learning a great deal more about the earth and its organisms so that we can keep our blunders to a minimum, or, if we make them, so that we may know how they can be corrected. As a part of this program of long-rang earth studies, a comprehensive system of check areas, unexploited yet managed to simulate original conditions as closely as possible, will be essential. And the research program based on these areas and elsewhere as well, on lands in active use, should put some added emphasis on understanding the earth in its enormous complexity, correspondingly with a little less emphasis on how we can more rapidly and effectively exploit the earth.

A system of natural areas, managed to simulate original conditions as closely as possible, would be an indispensable cog in the research program. The objective would be to preserve the soils, plants, and animals in original communities. In some areas periodic burnings would be required to recreate original conditions. We must accept some responsibility for some experimentation and management.

However, in no case should all of an experimental area be committed to such tinkering. It is important for scientific purposes to keep some check areas unmanaged.

There is no system of natural areas today. The national parks have the greatest range of land and plant types. The national forest wilderness areas tend to be the poorest sites. It is important that they retain their fringes of timber zone, as for example in the Three Sisters and Yolla Bolly areas.

Robert C. Miller pointed to the primary importance of knowledge for its own sake. Many "useless" discoveries have later become of economic importance. We need natural areas for certain basic knowledge and unless we preserve such areas this knowledge may be lost forever.

Mr. Rhode spoke of some of the choices that have to be made in game management in Alaska; e.g., choosing between policies which favor moose or those which favor caribou. In some parts of Alaska, man has developed fisheries down to a very low spot. Fisheries took out trout to protect salmon eggs with result that sticklebacks came in and now they take food of young salmon. Big game is eminently suited as an important crop in Alaska.

Long-lasting scars are appearing on tundra north of the Arctic Divide as a result of oil-prospecting tractors. Planes are preferable to jeeps; they do not leave scars. Alaskans are the "flyingest people in the world."

Management is desirable in some areas in Alaska. However, certain areas should be designated as wilderness in the true sense, even though Alaskan public opinion is at present against withholding land for this purpose.

Lowell Sumner said there was no deer or elk problem in the national parks prior to 1900. After this date man changed the natural ecology, including a reduction in numbers of mountain lions. Mountain meadows have also been altered by man so that it is now difficult to find a meadow in its original condition. Perhaps a few which have not been altered should be fenced and earmarked for research.

Dr. Bryant questioned why Dr. Leopold should have chosen a national park as a place where man might recreate a forest with the aid of fire.

Dr. Leopold rejoined that the point he was trying to make was that the white fir and cedar forests now appearing in the parks are man-made.

Mr. Leonard pointed out the difficulty of deciding what era to select in any attempt to recreate a forest as it once was. He did not object to experimenting with controlled burning in certain areas, but objected to its being done in national or state parks.

Mr. Davis called attention to the fact that the word "conservation" means more than "spiritual values." He felt that cattlemen and lumbermen are potential allies to wilderness preservation and would go along with us on a complete conservation program which would include water, timber, and soil as well as recreational and wilderness values.

Prof. Richard G. Miller (Long Beach State College) discussed the question whether ecological succession should be arrested or not, and suggested the value of wilderness for study, as an exercise of the mind, for all students, not just for scientists.

Mr. Packard suggested that university students be encouraged to use national parks and wilderness areas for study. Studies in such areas might be carried on on a contract basis with the universities or the government.

Mr. Aldrich said we have no alternative but to preach to the masses the need to preserve these natural areas.

Mr. Collins said that some research programs are being conducted through cooperation between universities and the National Park Service.

Ana Mary Elliot (Citizens' Group, San Jacinto preservation) thought the great-

est value of wilderness is the sense it gives of seeming greater than ourselves. Its spiritual values are especially important to teach children.

Mrs. Edgar Wayburn spoke of using scientific values as a tool to stimulate interest in the preservation of aesthetic values.

Fred Gunsky (Editor, *Sierra Club Bulletin,* monthly) spoke of making use of the scientific values of wilderness as a means of stimulating interest in all the values of wilderness. He went on to say that we are not alone in our philosophy, which after all is a total point of view—a way of life with a religious aspect. We must coöperate more with other conservation organizations and agencies and our approach to them should not be too highbrow.

Mr. Spencer spoke of basic need to educate American people to the advantages to themselves individually and to society of sensible conservation practices. The next generation must be taught to appreciate what they have in the basic land resources of the United States—the spiritual values as well as other values.

Mr. Sumner said there are about 73 ecological studies being conducted by various institutions as well as by the Park Service in the national parks.

Dr. Wayburn spoke of the question sometimes asked of how much wilderness we need. He felt that we cannot know how much at this time so that it is essential to leave as much untouched wilderness as possible.

Building a Policy for Wilderness

Discussion Chairman: Fred M. Packard

Speakers: Prof. Harold C. Bradley, Howard Zahniser

Dr. Bradley spoke on classifying different types or degrees of wilderness. He discussed first, four major criteria for selecting wilderness lands for preservation: (1) they should be in primitive condition, (2) all motorized transportation and commercial developments should be excluded, (3) they should be free of man-made sights and sounds, (4) they should be of adequate size.

He went on to describe three classes of wilderness. *Class A* has trails, not highly engineered. These areas are large enough to compel one to camp out in traversing them by primitive means. Some of these areas are in national parks; some in national forests; and some probably are left in areas under jurisdiction of Bureau of Land Management, although not given any designation. Those in the last group which are marred by jeep tracks would have to be removed from Class A.

Class B shows some signs of deteriorating influence of human occupancy, such as burned cans, kleenex, and "other effluvia of our high culture." These signs may include structures which cannot be concealed and, like similar artifacts, they produce a change in attitude of those who see them. However, structures, if not too permanent, can be erased, as may even roads which do not become too deeply imprinted.

Class C started as a perfect wilderness, but has been so highly marred and in such a way that it may take from one to three generations, even under the most careful protection, to bring an area of this class back to the qualities of Class B.

Dr. Bradley also discussed the economic, scientific, and spiritual values of wilderness, and the use, protection, administration, and management of these areas.

Howard Zahniser spoke on the need for a clear policy of wilderness protection with a strong legislative program to implement it. He expressed the fundamental need of our civilization in its present phase for areas of wilderness, "a need that is not only recreational and spiritual, but also educational and scientific, and essential to a true understanding of ourselves, our culture, our own natures, and our place in nature." If we are to continue to have significant wilderness, we must fulfill the basic need to preserve the large wildernesses in national parks, national

forests, and other areas where they exist. We must protect wilderness conditions as we know them. The commodities we need, as well as nonwilderness recreation, should be provided outside of the areas reserved for wilderness. Our emphasis in wilderness should be our humility rather than our dominance.

Mr. Zahniser went on to point out that it will be those areas which we deliberately set aside and protect which will be preserved and which will survive as wilderness over the years. He felt that national (federal) ownership affords the safest protection to wilderness and that therefore a federal program is needed. At present, wilderness protection on the whole is incidental to other land purposes in national parks and national forests; wilderness is not preserved as wilderness under any stated legislative purpose.

We need a national legislative program to give needed protection to wilderness. It should include recreational, educational, and scientific uses, but its primary purpose should be the continuing protection of wilderness as wilderness. Basic legislation should establish a system of wilderness areas, including those under the jurisdiction of the National Park Service, the Forest Service, and the Bureau of Land Management, and designate and protect such areas by law. These areas, however, would continue to be under the jurisdiction of the agencies at present administering them. Possibly a wilderness preservation commission may be needed to supplement and coördinate the work of the present agencies. We should work toward the formulation and passage of a bill or joint resolution of Congress to achieve this program. If any areas are available for protection in a natural condition where the Federal Government cannot or will not act, state and local governments should step in to give the needed protection. Finally, Mr. Zahniser suggested that this conference set up a committee to work on these recommendations for a basic policy and for basic legislation for wilderness protection.

Mr. Kelley suggested the need of a nationwide conservation program which would get down to the grass roots, especially to reach children. We should also work for the establishment of a nation-wide conservation organization or foundation which would go farther than the existing individual groups and which would seek funds for an educational program.

Mr. Packard spoke of the existing Natural Resources Council which is an organization of organizations in this field. He also discussed some of the problems that would have to be worked out in drafting wilderness protection legislation.

Oscar Oswald (Manager, Pinecrest Lodge) discussed the recreational, educational, and aesthetic values of the Emigrant Basin Wilderness Area in California and threats facing the area. He urged that this area be withdrawn from mineral entry and that no roads be built within it.

John R. Barnard (Sierra Club) said Emigrant Basin has practically been lost in the past year, and urged prompt action for a bill to protect wilderness principles.

David R. Brower (Sierra Club) suggested that the staff which got this conference together should continue. Those who came to this conference should be kept informed of developments in the wilderness field, perhaps by a bimonthly newsletter. It should include the proceedings and recommendations of this conference.

F. W. Leighton (Tuolumne County Fish and Game Assn.) said that dams were built years ago in the Stanislaus Wilderness Area (Emigrant Basin) under pressure of fishermen who wanted to keep fish in the area and were disturbed at the canyons' going dry almost every other year.

Charlotte E. Mauk (Sierra Club) said we are concerned primarily with conserving wilderness as pure wilderness and with preventing its misuse and damage by overuse. We are also concerned with the important functions of semi-wilderness or buffer wilderness. If we are to avoid overuse of wilderness, we must offer alternative places for fishing, hiking, auto camping, etc.; but places suitable for these activities are becoming as unavailable as remote wilderness. In order to protect the farthest wilderness by not making it more accessible we must also take steps to hold on to and increase areas for fringe forest-recreational activities. Let us give consideration, Miss Mauk concluded, "to the protection of the protective areas."

THE FIFTH BIENNIAL WILDERNESS CONFERENCE, March 15–16, 1957

Our Scenic Open Spaces—A Review

Chairman: David R. Brower, Executive Director, Sierra Club, and chairman of the Natural Resources Council of America

[See the address beginning page 52 given by Mr. Brower, which has been quoted in full. Following this a paper by Mr. Lowell Sumner was presented, which has also been given in full beginning page 86. Then followed the discussion, which is summarized below.]

Olaus J. Murie (President and Director, The Wilderness Society) said he would not deny a certain aesthetic awareness by the beaver, but felt man has a more complex problem than the beaver—he not only wants to keep alive, but also craves certain aesthetic experiences which enrich his life. He wants quality in living, not merely existence.

Sigurd F. Olson (President, National Parks Association) believed the human mind, which has made possible our living standards of today, will be able to correct the population explosion before it is too late. He was appalled at the rapid industrial and suburban development in formerly rural areas.

Fred Packard (Executive Secretary, National Parks Association) believed that too many American businessmen do not comprehend the problems of conservation, but think rather in terms of expanded units of business. He was encouraged, however, at the progress being made in bringing conservation information to the industrial world.

Father Duryea stated that we have a trusteeship over our land and that as custodians there is imposed on us a need for discipline in all things. Many people use resources only for material gain thus not carrying out the full trusteeship which has been given to us.

Pat Thompson (former Regional Forester, California Region) said he is a supporter of wilderness. Some industries, he added, believe in conservation, which means wise use—something more than locking up certain areas. Too much population will sooner or later destroy wilderness, he predicted.

John W. Spencer (former Regional Forester, Rocky Mountain Region) believed that the same forces which threaten wildlife populations also threaten man. He hated to think the future of the human race would be to commit suicide and felt confident that human intelligence would solve its problems. He spoke highly of the educational work of the Sierra Club, Isaak Walton League, and other conservation groups.

Wilderness and Culture

[See the address given by Mr. A. Starker Leopold which has been cited in full, page 81. The discussion follows.]

Richard M. Leonard (Sierra Club officer) said that he was on the side of the optimists concerning the future of conservation and the welfare of mankind. "The fact that man does have the unique mental capacity to be concerned with the future, gives him the opportunity to do something about it. The very fact that the explosion of population in recent decades has intensified dramatically the damage to our natural resources, makes it possible to recognize the injury as being the result of mistakes by man, and not the unfortunate whim of changes in climate or 'acts of God.' This knowledge of the cause of the damage enables man to plan corrective action."

The accomplishments of the past several decades in the preservation of our natural resources, Mr. Leonard went on to say, indicate that we are gaining more than we are losing. He pointed as examples to the increased strength or relatively recent concepts of formal programs for conservation of forests, water, soil, and wildlife, and the control of water and air pollution; and to "the unique American National Park System and formal dedication of wilderness areas" which is spreading with "increased strength to every continent." "The fact that mankind will so strongly defend intangible values of his natural resources places him far above the 'social animals' such as the ant, the bee, and the beaver, who do plan ahead, but primarily for their own material benefit."

Charlotte E. Mauk (Sierra Club Director) said that people learn to appreciate nature by contact with it; and that among other things we need to educate our children to appreciate scenic values close at home, including those in our city parks.

What's Left?

Harlean James (Executive Secretary of the American Planning and Civic Association) as session vice-chairman opened the discussion of "What's left of our scenic open spaces?" by briefly reviewing the background of the creation of our National Park System, our system of National Forest Wilderness Areas, and the preservation of wilderness and wildlife by the Fish and Wildlife Service, by the Bureau of Land Management, and by tribal control on Indian lands.

Miss James spoke especially of the work of J. Horace McFarland and Frederick Law Olmsted which resulted in the establishment of a Federal agency to administer the national parks. When Stephen Mather and Horace Albright were brought to Washington, the work of the combined forces resulted in the passage of the National Park Act of 1916 which created the National Park System.

Locally

Harold S. Wagner (Metropolitan Park Board, Akron, Ohio) discussed problems of the preservation of municipal, county, and state open spaces. "The preservation of open spaces on all levels," he said, "is just as much a steady job as is the right to liberty and the pursuit of happiness." When you build a public park through acquiring the land and developing it, too often when the public arrives the scene changes and in place of building for the people, "the task seems to become one of preserving the park against the people." However, there are many fine examples of open-space preservation in large and small cities in America and abroad.

Establishing county parks in suburban areas is made difficult by a feeling of those who come out to the areas that they do not need such public facilities. Their preservation is made difficult by suburban and state services seeking "free land, meaning land acquired by another public agency." The problem of highways is especially serious.

The referendum in New York State which defeated the attempts to build Panther Mountain Dam and which protected the Adirondack Forest Preserve for the future was one of the most important preservation victories on any level of government.

"It's in the towns and the cities and in the suburban fringes," Mr. Wagner concluded, "that the support for open space and wilderness preservation is to be found." He felt furthermore that "the knowledge and the appreciation of a major-

ity of the people will be developed more largely out of pleasant experiences and contact with fine examples of scenic open space and wilderness. . . . The boys and girls, the young men and women, who find the value of scenic open spaces of a local and even mediocre character will grow up into the job of preserving the superlative areas. First of all we've got to believe that "nothing succeeds like successors."

Nationally

Joseph W. Penfold (National Conservation Director, Izaak Walton League of America) said that in order to answer the question, "What's left of our scenic open spaces?" we must develop and agree to definitions and criteria for "scenic open spaces," must gain general public acceptance of them, must inventory and evaluate scenic open spaces, and recognize their relation to all our other resources. Then, perhaps we can develop plans and programs by which they may become an enduring part of the entire resource-use pattern.

"If scenic open space means space relatively untouched by man, our nation certainly had an abundance from the start"—about 600 acres per capita. The acreage dropped to 60 in the ensuing 77 years, Alaska included. Today there are only 13.8 acres per capita. This figure will decline still further to 10 for our children and 8 for our grandchildren—8 acres each to satisfy all their wants, necessities and luxuries, and within which they must satisfy their longings for space, for beauty, for natural grandeur, for adventure, for all opportunity." "There is no synthetic substitute for space."

The problem is made more complex by the large amounts of space taken by airports, modern highways, suburbs, parking areas. Five hundred thousand acres alone is taken up by America's automobiles and trucks just bumper to bumper. Pressure on limited resources increases also through economic betterment—higher wages, shorter hours, longer vacations, better roads, and faster transportation all contribute.

In one state the number of fishermen has doubled since the war and they fish twice as often. Hence fishing pressure has quadrupled. Similar pressure patterns can be noted on all types of use of scenic open space. Technology is also diminishing open spaces. More efficient farming uses up the field corners to avoid "waste"; but it was these corners and fence lines which produced upland birds and game. Trends in resource management before long will give wildlands more of the characteristics of cultivated lands, "whether the objective be grass for livestock, forage for deer, optimum yield of timber, watershed management for optimum water production or trout hatchery programs."

To meet the obvious demands of the people, science has been efficiently applied to resource management. "We use more paper so we plant and harvest more pulpwood. There are more fishermen, so we plant more fish. More people, more bathrooms and baths, more water-using gadgets, so we divert more streams. In none of these efforts do we attempt to meet the total needs of the people. Hence, too frequently in achieving one desirable objective we've been equally successful in thwarting others."

We can recognize then that no resource use is independent of all others. "Protection of parks, wilderness, wildlife refuges, and other dedicated areas is no more independent of what happens on all other lands than *they* are of a vastly increased population with more time and inclination to make use of them. . . . Maybe there's truth in the thought that preservation of wilderness will depend far more on what we do outside of the wilderness than what we do with wilderness." Wilderness preservation is an integral part of the overall land-management pattern.

"We must develop a conscience toward all scenic potentials if we are to hope that any of them may endure."

"David Brower and the Sierra Club," Mr. Penfold continued, "have brilliantly conceived and proposed a 'Scenic Resources Review.'" The Anderson-Aspinall Bill, now before Congress, would set up a Commission to make a broad study, inven-

tory, and evaluation of all outdoor-recreation resources encompassed in the club's proposal. It would be important, in this connection, for conservationists to develop a set of definitions and criteria which would result in refining standards for evaluation of scenic resources with greater accuracy and precision. Mr. Penfold referred to his suggestion at the Third Wilderness Conference of using the word "isoprim" to designate the level of primitiveness or wildness, just as isobars and isotherms depict the "contours" of barometric pressure and temperature on a weather map. He suggested a new concept, *isoscen* (with a long *e*), to help depict the peaks of scenic quality in America.

In conclusion he spoke of the "tremendous opportunity to demonstrate and secure understanding of the truth that our scenic resources are very few in relation to our ability to diminish or destroy them, and very extensive if we have the will to discipline ourselves in accordance with our total needs."

Internationally

[See the address given by Mr. Lee M. Talbot quoted on page 75 after which a discussion followed which is summarized below.]

William C. Yeomans (Alameda County, Calif.) thought that too many people are unable to discover wilderness except by chance.

John Barnard (Mill Valley, Calif.) asked whether there are any preserves in Europe equivalent to our national or state parks. Mr. Talbot responded that there is no true wilderness as such, but there are some old hunting areas which once belonged to royal families.

Resolution of Conflicts

[See the address of Mr. David R. Brower cited on page 103 for the full text.]

Appraisal of the Day's Program

Marshall N. Dana (Chairman, Recreation Subcommittee, Columbia Basin Inter-Agency Commission), after appraising the day's discussion, spoke of the need to secure the support of informed, sympathetic, and active public opinion.

When the 100 million who visited our national parks and national forests last year "pick up their beer bottles, their paper plates, their uneaten food, and their Sunday supplements, I will be prepared to believe they are genuinely supporters of the wilderness program. We are compelled to meet the test of our fitness for our wilderness. We are called upon to think of wilderness in relationship to common lives and common happiness of a great many people."

Mr. Dana posed the question of whether highways and airports which appropriate areas needed for wilderness do not take men into space which leads to exaltation of mind.

In conclusion, he pointed out that wilderness is more than "a chunk of terrain"; it is "a state of mind, of heart, and soul. One may have a beautiful bit of wilderness in his own spirit. Thus, he can enjoy a zone of calm which protects him from the strains and stresses of life."

Martin Litton (Sierra Club and Travel Editor, *Sunset Magazine*) said that you only can have wilderness in your mind if it exists somewhere on the ground; he likened this relationship to a dollar bill, which has value not in its paper and ink, but in what exists to back it up.

Mr. Olson thought people are learning fast to cherish wild places and not to despoil them. He felt much more educational work was needed and spoke of what Keep America Beautiful and other groups are doing in this direction.

"We are children of the earth," he added, and therefore must see tangible evidences of wilderness to comprehend what wilderness really is.

Edgar Wayburn (Chairman, Conservation Committee, Sierra Club) pointed out

that changes are being made to wilderness day by day at hearings, by legislatures, and by administrative bodies regardless of philosophies. Broad philosophies are not enough; it is the little things that count in the fate of wilderness.

James P. Gilligan (Associate Professor of Forestry, Oklahoma A. & M.) suggested that if we want wilderness we must face the following practical questions: 1. With the Forest Service tending more toward mechanization, are we willing to keep out mechanization and let sizable acreages of wilderness burn? 2. Are we willing to let large populations use wilderness? 3. Are we willing to pay higher prices for minerals and accept lower-grade wood products? 4. Are we willing to resist mass demands for better and shorter transportation routes? 5. Are we willing to have less water available in wilderness areas than might be possible.

Miss Mauk said that although the actual cost per day for a wilderness trip has tripled in the last several years, we are willing to pay this increased amount for a true wilderness experience; but that we are unwilling to pay more for an impaired resource that we no longer want.

Waning Wilderness of the Seashore

Toastmaster for the Evening Banquet: Bestor Robinson, Director, Sierra Club, and chairman of the Secretary of the Interior's Advisory Committee on Conservation

Following the banquet, a group from the California Academy of Sciences discussed the "Waning Wilderness of the Seashore."

Robert T. Orr discussed the effect of pollution from dumps and sewage, and the filling in of land for houses, roads, and airports, on ecological relations and animal life on mudflats and tide-grass areas, and urged that more areas be set aside for preservation in their natural condition, and that better antipollution laws be passed.

Allyn S. Smith, speaking on "Seashells and Serendipity," presented some similar problems and described the overcropping of underwater fauna on the ocean bottom near the seashore. *Earl S. Herald* told how the increase of underwater spearing in certain areas has done away with certain species and is threatening others.

Robert C. Miller told of seashore reserves on the Pacific Coast, the program of the California Division of Beaches and Parks, and of the need for legislation to curb the depredations of skin divers. Certain underwater areas must be set aside where the water, seabottom and shore are left undisturbed. He also spoke of national seashore reserves, including the wilderness beach with no roads in Olympic National Park, and of his alarm that if shoreline roads are built in Olympic Park they will destroy that wonderful shoreline area.

The National Wilderness System

Session Chairman: Howard Zahniser, Executive Secretary, The Wilderness Society

Dr. Jacob Long (San Francisco Theological Seminary, San Anselmo) gave an Invocation.

Bureau of Land Management

Edward Woozley (Director, Bureau of Land Management) described the expanding work of the Bureau of Land Management in administering 178 million

acres of unreserved public domain lands in continental United States and more than 290 million acres in Alaska. He spoke of the impact of the $250 million range-rehabilitation program in overcoming objections to the removal of potential recreation sites from grazing lands and in reducing pressures for extension of livestock grazing into wilderness and other recreation areas. He added that it was his feeling that "the more we control erosion, grow grass and ranges, raise more timber and husband and make optimum use of the minerals in proven districts, the more land there will be that can be added to the already extensive areas devoted to outdoor recreation and wilderness use." An inventory of present and future needs, including recreation, would be helpful.

Unlike some other agencies, Mr. Woozley pointed out, the Bureau of Land Management has no large areas specifically reserved for wilderness purposes. However, some of the lands withdrawn from the public domain in the past are now a part of wilderness. When these lands were withdrawn they went under the management of the agency requesting the reservation.

Bureau of Indian Affairs

Don C. Foster (Portland Area Director, Bureau of Indian Affairs) commented that most of those in the Indian Service "appreciate the public benefits that would result from the establishment of a national wilderness system. In fact, wherever Indian lands can and should be properly set aside as wilderness areas without violating the rights and prerogatives of the owners, I am sure you will find us among the ranks of the many agencies and organizations coöperating to achieve the purposes that have been emphasized at this conference."

He pointed out that his agency, unlike the Forest Service, National Park Service, and Bureau of Land Management, is not the custodian and administrator of public lands. The agency acts as trustee for lands which belong either to Indian tribal groups or individual Indians, and must give full consideration to the desires and interests of the Indian owners.

The principal problem facing the Indian Bureau today is "too many people and not enough land." This has led the Bureau to place greater emphasis on broader opportunities for Indians. Its three-point program includes a better health program, improved educational facilities, and economic development, including the development of reservation resources.

Mr. Foster spoke of the fine wilderness territory of the Four Corners area where Utah, Colorado, New Mexico, and Arizona meet. Because of its great oil and gas potential it is now being "developed," returning large sums of money to the Navajo Tribe. However, he pointed out that not many Indian lands have such great economic values.

In conclusion he said: (1) no Indian lands should be set aside for wilderness purposes unless the Indians approve such action; and (2) if lands are set aside for wilderness areas, the Indians should be fully and fairly compensated for loss of any other values that may be involved.

Fish and Wildlife Service

Daniel H. Janzen (Director, Bureau of Sport Fisheries and Wildlife) said that "wilderness is absolutely essential to a number of our interesting and important species of North American wildlife." Natural areas on many National Wildlife Refuges are kept free of habitat manipulation. They are not only important to those animal species depending on such an environment; they also contribute to the preservation of unique forms of plant ecology. They also are valuable for comparing fauna and flora characteristics with those lands subject to multiple use and management for game production.

In conclusion Mr. Janzen stated, "Wilderness areas are wildlife reservoirs which often aid in the natural stocking of more accessible areas that are heavily used by sportsmen, and they furnish very high quality hunting and fishing for those who are willing to earn it. . . . It would be a disservice to the people to provide

easy access to these wildlife resources, since the capacity of many of the present wilderness areas, particularly those in high mountain country, is limited in their ability to produce wildlife. . . . Because of the rather limited and fixed capacity of these remote areas to sustain wildlife populations, they cannot support the greatly increased hunting and fishing pressure that would follow in the absence of strict control over access by the airplane and other mechanized transportation. In other words, easy access to a wild area is often akin to killing the goose that laid the golden egg. The hunting and fishing areas that remain accessible only by trail or canoe will become of great value to the public as our population expands. The value represented in these areas can be quickly destroyed through making them too easily available."

Luella Sawyer (Sierra Club, and Editor, *Western Outdoor Quarterly*) asked Mr. Woozley what was planned to be done to rehabilitate lands in the southwest taken by the military during the war but now abandoned. Mr. Woozley answered that some have not been returned to the public domain, and others which have been returned have not been decontaminated and that it is up to the military to do this.

Mr. Packard asked Mr. Janzen what the impact is of what the military is doing on land use and wildlife. Mr. Janzen answered that his bureau was under constant pressure, but it has succeeded to date in warding off encroachments of the military.

Dr. Murie complimented the Bureau of Land Management on its program to fight forest fires in interior Alaska—a matter which for many years has been ignored by Alaskans with the result that much of interior Alaska has been burned up.

Turning to an issue on the Crow Indian Reservation, Dr. Murie said that a number of years ago the Bureau of Reclamation decided to build a dam in Bighorn Canyon, on Indian lands, naming it "Yellowtail Dam." The Crow Chief, Robert Yellowtail, said to him several years ago, "They thought they would win our approval by putting my name on the dam." However, recently the Bureau of Reclamation has put before the Indians the bait of several million dollars to be paid to them for the privilege of building the dam. Unfortunately, the younger Indians have fallen for this bait, and want those millions of dollars at the expense of losing one of the beautiful canyons of our country. The older Indians, and Robert Yellowtail, still stick to the principles involved. This is another instance of the unpreparedness of the Indians to cope with the wiles of the white man, especially where exercised by a well-financed bureau of our government.

Dr. Leopold asked whether it would be feasible, in planning for wilderness preservation in Alaska, to develop an interagency handling of resources for parks, wilderness, and recreation. Mr. Woozley replied that there is need for coördination of the five federal land-management agencies in Alaska to prepare an overall land-management plan including full recognition of the need for the establishment of large wilderness areas to preserve various species of fauna and flora and the scenic values of Alaska.

Clarence Rhode (U.S. Fish and Wildlife Service, Alaska) agreed that we should work toward a coördinated program to plan for wilderness preservation in Alaska.

Seth Gordon (Director, Department of Fish and Game, California) asked Mr. Woozley whether all coastal lands are now withdrawn from further disposal. Mr. Woozley replied that his bureau had suspended action on all applications for disposal of any land bordering the Pacific Ocean until the completion of a seashore study.

Forest Service

Richard E. McArdle (Chief, U.S. Forest Service) said that the Department of Agriculture has recognized the desirability of protecting and preserving wilderness for a long time, and will continue to do so. The Forest Service believes that wilderness is a valuable use of national forest resources.

Mr. McArdle traced the development of the National Forest wilderness system from the first formal recognition of wilderness as a significant national-forest use in the early 1920s to the present, which finds us with 12 wilderness areas totaling 3,969,000 acres; 23 wild areas totaling 815,000 acres; 3 roadless areas totaling 814,000 acres; and 43 primitive areas totaling 8,252,000 acres—a grand total of 81 units with 13,850,000 acres. He also mentioned three new wilderness areas which have been proposed: Tracy Arm–Fords Terror area in Alaska, Jarbridge area in Nevada, and Glacier Peak in Washington.

He continued, "Use for wilderness purposes of large areas of national forest is an important use, a desirable use . . . but it is only one of many important uses of a national forest. . . . There is not enough national forest to satisfy *all* the needs of our growing population. . . . That is why we stress multiple use and sustained yield of resources and services" for the greatest good of the greatest number in the long run. "Wilderness is a special problem because use for this purpose does not lend itself to sharing an area with many other uses."

"Wilderness areas must be managed and protected in order to remain useful as wilderness. That is a difficult and often rather costly job. Although legislation might be helpful in resolving some of these difficulties, many of them are administrative problems which can't be solved by legislation."

"Formal establishment as a wilderness area does not guarantee preservation of resource value. Fire, insects, disease, and windthrow are constant threats not only to forests in the wilderness area, but there is also the ever-present danger that big fires or disease or insect epidemics may spread to adjoining lands outside the wilderness." "Quick access is the key to fire control"; but you don't have it if you have wilderness.

Mr. McArdle added that wilderness costs something and these costs are increasing. Part of them is "measured in terms of what you can't have if you do have wilderness—less timber, less forage, less water, less opportunity for people to enjoy the best scenery, and so on."

"Practically every wilderness area contains timber, minerals, water, and vast opportunities for mass recreation which in time may be needed by our growing population. If the need for these resources becomes critical there will be public demand to modify the wilderness so that these resources may be used. The time may come when there will be a showdown between fully appraised wilderness values versus other values."

"The best way to avoid that pressure on wilderness," Mr. McArdle suggested, "is to provide an adequate supply of other resources by good multiple use in non-wilderness areas." Similarly, to meet growing pressure for mass recreational use, including greater accessibility to motor transport, the best job is needed to develop and protect all the mass-recreation opportunities on all land ownerships. The Forest Service's "Operation Outdoors" is a part of this program.

In regard to the wilderness bills introduced in Congress, Mr. McArdle said he is "In sympathy with the general objectives of these proposals and believes that it would be helpful if Congress were to enunciate a policy on wilderness so that administrators of public lands would have some direct guidance from Congress as to the protection and preservation of wilderness and the objectives of wilderness management. This statement," he added, "should not be construed as specific approval by me or by the Forest Service of the [present] specific legislative proposals. . . . We are studying them carefully. The Department has not yet made its report, and I am not at liberty to discuss the bills except in very general terms."

Mr. Brower, referring to Dr. McArdle's major concern with fire protection in wilderness and the limitations of smoke jumpers, asked if the Forest Service could develop a research program in the use of "tamed fire" as opposed to wild fire, and could also develop figures relating to fire roads *vs.* helicopters with respect to present relative costs and trend in relative costs. He urged that the Service

not limit its concept of the use of wilderness to those few who actually set foot on it, and pointed out that wilderness, like the rare California condor, was of value to many people who were content merely to know that it still existed. He urged the Service to make an appraisal of the long-range value of all the multiple uses of the forests that were compatible with wilderness, and that the Service undertake to learn the human carrying capacity of wilderness.

National Park Service

Conrad L. Wirth (Director, National Park Service) said "an adequate National Park System should have plenty of room in it for wilderness." The idea of wilderness and its preservation, however, involves "far more than mere roadlessness, although an important element of a wilderness preservation program is the retention of large roadless areas. As we build a road into Wonder Lake in Mount McKinley National Park that does not mean that the park is no longer a wilderness. The road is a wilderness road, to bring people into the wilderness, as John Muir advocated. Some magnificent wilderness can be seen from our roads."

"Wilderness preservation is complex and positive." In the national parks we try to preserve the integrity of the intricate interrelated mechanism of nature—the wholeness or completeness of nature. "Under this concept, the building of a road or trail into it may be far less destructive of the natural character than are such activities as hunting, predatory-animal control and the grazing of domestic livestock."

Muir "was not one who urged that wilderness should be preserved for wilderness' sake. Far from it! He worked tirelessly to preserve wilderness and to bring people into it for the pleasure and good they would get out of it. This, to my way of thinking, is the very essence of the park conservation program."

The Park Service recently has prepared a statement on preservation of natural and wilderness values in national parks. It explains that "preserving the natural character and integrity of the parks means protecting them from logging, grazing, mining, water storage projects, hunting and trapping, and, if possible, acquiring the inholdings of private lands before they are put to uses utterly destructive of park values."

To learn how to use wilderness best, Mr. Wirth continued, is difficult and the many different views "over the kind of facilities to be provided for park visitors are growing pains in the slowly evolving art of wilderness use." Therefore because of the intangible values involved and diversity of reaction to them, our approach to the problem must be a cautious one."

In general, different parks with different characteristics require different plans of development. The Park Service therefore has no set formula or plan of development for all parks, just as it has no one master plan for trails and architecture or road systems.

Mr. Wirth went on to discuss briefly some of the opportunities of Mission 66, and of the perfecting of a more adequate interpretive program. "Educational or interpretive programs, properly carried out, are the crowning achievement in wilderness use for they help bring the understanding, appreciation, and pleasure in wilderness that Muir must have had in mind . . ."

Mr. Wirth also spoke of the Park Service's coöperative efforts which he hoped would lead to formulating and publishing "a national outdoor recreation resources plan" by 1961. It will include "a systematic and comprehensive analysis of the wilderness and wild land needs of the country, and a systematic plan for the preservation of the wilderness and wild lands required to meet those needs." He asked for coöperation in formulating and working out such a plan. The need for this recreation survey to National Parks was due to their being faced "with a flood-control project," he concluded. "The flood pouring in on us is people. It must be controlled or it will leave a ruined National Park System in its wake. We cannot meet our responsibilities for park protection by meeting the flood at

the park gates and trying to control it from there. We need dams and diversions upstream and this will call for action on the part of many agencies."

Discussion time was devoted to the completion of the Park Service statement.

Summary of the Day

Howard Zahniser, as summarizer, pointed out that the day's discussion had brought out certain assumptions about wilderness. 1. All our wilderness is in lands serving some other purposes. 2. Our civilization is such that it is destined to occupy for its purposes all the lands we have unless it is checked. 3. Only those areas can be expected to be preserved as wilderness which are deliberately so set aside for preservation. 4. Our best practical opportunity for wilderness preservation is through the Federal Government, although in some states wilderness may be preserved by state governments. Lands in private ownership are not areas available for such planning in perpetuity. 5. Our wilderness preservation purposes include perpetuity. "We are trying to keep unchanged by man areas that have grown through the eternity of the past and, although we stand in awe at our presumption, we dare to plan that they may so persist through the eternity yet ahead."

"In the United States, wilderness for the future depends on our success in developing a policy and program that provides for the preservation of wilderness as such, by our Federal Government, with a presumption of perpetuity." We understand, however, that "there can be no sound program for the preservation of something that does not include provision for addition, modification, elimination. The best we can do is to perpetuate the opportunity for perpetuity."

In wilderness we are dealing with a human concept. "We describe an area as wilderness because of a character it has—not because of a particular use it serves. Retaining that character, it can still serve varying and various purposes. Wilderness is not only land with a certain character that *can* be preserved in varying circumstances. It *has been* so preserved, for the areas of wilderness we now have are all areas which serve some stated purpose other than the preservation of wilderness as such."

For example, the wilderness of each national park is back country, or foreground, to some unique scenic splendor or complex of wildlife or flora. "We owe the leaders of the National Park Service a great debt for the way in which they have fostered the wilderness idea, but we must recognize that the wilderness concept is compatible with, not identical to, the national park idea—an enrichment certainly of the national park purpose, but not the genesis." Similarly, while wilderness, wild, primitive, and roadless areas serve essential purposes in the National Forests of which they are a part, they have retained their wilderness character to a great extent because the administrators of national forests have so managed them. A further example of the secondary reasons for which wilderness areas are preserved is the Okefenokee National Wildlife Refuge in which wilderness is kept in connection with the administration of the area for wildlife protection.

Despite the difficulties facing wilderness continuance, we still have a remarkable heritage of wilderness available for our use and preservation. There are about 164 units of our federal wilderness preservation resources comprising some 55 million acres. In addition there are a dozen or so state areas of wilderness aggregating about three million acres.

Mr. Zahniser spoke briefly of the discussions at previous Biennial Wilderness Conferences that had to do with the development of Federal legislation to protect a National Wilderness System. He quoted the resolutions adopted by the Fourth (1955) Conference and then gave an account of development during the past two years which led to the introduction of bills for this purpose in both House and Senate.

Mr. Zahniser went on to describe the main types of units under various agencies in our wilderness system, and then analyzed the main features of the National Wilderness System Preservation Bill which has been introduced in the U.S. Senate by Hubert H. Humphrey and co-sponsored by Richard Neuberger and eleven other Senators of both political parties from coast to coast (S. 1176), and by John P. Saylor, Lee Metcalf, and five other Congressmen in the House.

It was observed from the floor that the Conference might consider broader problems of natural-resource conservation than just those related to wilderness.

Mr. Leonard said that "a complex civilization of two and one-half billion people, increasing rapidly every day, makes a certain amount of specialization necessary in order to give thorough consideration to each of the myriad parts of the whole. While there have been a number of broad conferences, such as that conducted by Resources for the Future in 1953, most conferences on conservation of natural resources are devoted to an intensive study of a particular part of the whole. Thus we have had the hearings of the President's Water Resources Policy Committee, the annual National Watershed Congress, the American Mining Congress, the North American Wildlife Conference, and a number of conferences on water- and air-pollution control, petroleum conservation, and regional timber conferences. Most of those meetings on specialized phases of conservation of natural resources have concentrated on commodity and economic values, and have only incidentally touched wilderness and other intangible values.

"That is the reason why the Biennial Wilderness Conferences have concentrated on an intensive study of the problems of preservation and use of Wilderness, with contributions this year by more than 400 experts from all parts of North America. The broad conservation of the commodity and economic values of all our natural resources is essential to enable mankind to afford to preserve a substantial portion of the intangible values. But unless at least one of the many resource conferences gives special attention to those intangible values, they may be lost in the apparent urgency of trying to live by bread alone."

THE WILDERNESS IDEA

Tomorrow's Wilderness **Edited by François Leydet**

The situation of today's wilderness resources and the outlook for the future is examined from many vantage points at the Eighth Biennial Wilderness Conference by a number of notable discussants including: Paul Brooks, Fairfield Osborn, Wallace Stegner, Nathaniel Owings, and Stewart Udall. Foreword by Howard Zahniser, 32 pages of photographs by Ansel Adams.

264 pages and 32 pages of illustrations, 6 x 9.2 inches, $5.75.

Wilderness: America's Living Heritage **Edited by David Brower**

"The Sierra Club has rendered a signal service to conservation in publishing this book. Made up of the talks given by 28 distinguished citizens at the Seventh Biennial Wilderness Conference sponsored in San Francisco by the Sierra Club, the book is both a testament of faith and a guide for conservationists everywhere." — *Library Journal*

Among the contributors were Justice William O. Douglas, Sigurd Olson, Ansel Adams, Joseph Wood Krutch, Gerard Piel, and Paul B. Sears.

224 pages, 28 pages of illustrations, 6 x 9.2 inches, $5.75.

The Meaning of Wilderness to Science **Edited by David Brower**

This handsome book consists primarily of contributions by eminent scientists from various parts of the world to the Sixth Biennial Wilderness Conference. It reveals why our life scientists must fight for what they alone have the eyes to perceive. Contributors: Daniel B. Beard, Stanley A. Cain, Ian McTaggert Cowan, Raymond B. Cowles, Frank Fraser Darling, Luna B. Leopold, Robert Rausch, and G. M. Trevelyan.

144 pages, plus 48 of varnished illustrations, 6 x 9.2 inches, endpaper map, five wilderness cards inserted, paper over board, $5.75.

Wilderness and Recreation
A report on resources, values, and problems

Result of a year's work by Wildland Research Center for the Outdoor Recreation Resources Review Commission, this volume is the most complete compilation of data on American wilderness now readily available. The Sierra Club edition of this important study is cloth bound and contains sections on commercial resources, economic analysis of wilderness areas, the wilderness vacationists, and wilderness regulations and administration. Included are detailed maps, charts, and photographs.

Sierra Club edition, cloth, 352 pages, $5.75.

For further information about the Sierra Club, see the inside of the jacket.

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